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ABSTRACT

These proceedings contain a summary of each of the 15 papers presented and the discussants' reactions. The keynote address and reflections on the outcome of the conference are also included. The keynote address is "Priorities for Continuing Progress in Research in Agricultural Education" (J. Robert Warmbrod). Presentations include "Assessment of Preservice Preparation by Recent Graduates of Agricultural Education Programs" (Ismail bin Yahya, Michael F. Burnett); "Follow-up Study of Tennessee Vocational Agriculture Students" (Clifton Ricketts); "Attitudes of Pre-Service Agricultural Education Majors and Their Relationship to Variables Related to Early Field-based Experience" (Jacquelyn P. Deeds); "Occupational Aspirations of Third Year Vocational Agriculture Students" (Gregory P. Venable, Michael F. Burnett); "Academic Success of Former Vocational Agriculture Students in Postsecondary, Associate Degree, Agricultural Programs" (Stanley Burke); "Image of Agricultural Education Teacher Training Programs in Colleges of Education and Agriculture at Three Major Universities" (Crunkilton, Miller, Lee); "Adoption of Computer Technology by Agricultural Educators" (Danny Cheatham, Blannie E. Bowen); "Microcomputer Use and Needs in Louisiana Vocational Agriculture Programs" (Drueckhammer, Kotrlik, Parton); and "A Comparison of Two Instructional Methods for Teaching Micro-Computer Competencies to Extension Personnel in Mississippi" (Graydon Elliott); "The Relationship of Personality Types of Arkansas Cooperative Extension Service Faculty to Job Satisfaction and Performance" (Donna L. Graham); "Relationship between Urbanization and Supervised Occupational Experience Programs in Florida" (Beeman, Arrington, Wotoweic); "The Relationship between Participation in Selected FFA (Future Farmers of America) Activities and Job Satisfaction of Program Completers in Vocational Agriculture in Texas" (Steven D. Fraze, Gary E. Briers); "National Evaluation: Teacher and Student Perceptions of the FFA's Food for America Program" (James D. White, Eddy Finley); "Nominal Groups: An Effective Tool for Facilitating Decisions and for Promoting Satisfaction among Conference Participants" (Jon Gresham); and "Vocational Agriculture for the Year 2000" (Joe Kotrlik). The summary, remarks, and challenges are by J. Robert Warmbrod and John A. Rolloff. (YLB)

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THIRTY FIFTH ANNUAL

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PROCEEDINGS

March 22-24, 1986
Riverfront Hilton Inn
North Little Rock, Arkansas

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PROCEEDINGS

THIRTY-FIFTH ANNUAL

SOUTHERN REGION

RESEARCH CONFERENCE

IN

AGRICULTURAL EDUCATION

MARCH 22 - 24, 1986

RIVERFRONT HILTON INN

NORTH LITTLE ROCK, ARKANSAS

COMPILED BY

JOHN A. ROLLOFF, CONFERENCE CHAIRPERSON

FORWARD

It was a privilege for us in Arkansas to host the thirty-fifth Annual Research Conference in Agricultural Education. These proceedings include a summary of each paper presented, the discussant's reactions, and reflections on the outcome of the conference. It also includes the minutes of our business meeting.

We hope you found the conference a professionally rewarding experience. To those who attended and participated we extend our sincere appreciation for your commitments of support and encouragement. Dr. J. Robert Warmbrod's keynote address, "Priorities for Continuing Progress in Research in Agricultural Education", heightened perceptions as to the meaning and significance of research and its impact on the profession.

For the first time the conferences' research papers were refereed. The selection process utilized the refereeing expertise of colleagues from the Universities of Maryland, Minnesota, and Purdue. Fifteen of the 26 proposed papers, submitted for consideration, were selected for presentation. Concurrently, the referees commended Southern Region Agricultural Educators for the high quality of the research submitted.

Your evaluations of the conference were most generous and have been forwarded to next year's conference chairperson. Increases in the quantity and quality of agricultural education research in the Southern Region can only enhance the continuation of these distinguished series of conferences. We are anticipating a stimulating 1987 conference in the historical setting of Williamsburg, Virginia.

John A. Rolloff
Conference Chairperson

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35th ANNUAL SOUTHERN REGION

RESEARCH CONFERENCE IN

AGRICULTURAL EDUCATION

* * * * *

MARCH 22-24, 1986
RIVERFRONT HILTON
NORTH LITTLE ROCK, ARKANSAS

Saturday, March 22

4:00 - 6:00 p.m.	REGISTRATION	Silver City Foyer
5:30 - 6:30 p.m.	RECEPTION	Huntersville Room

FIRST GENERAL SESSION

(7:00 - 9:00 p.m.)

Banquet

SILVER CITY IV

KEYNOTE ADDRESS

PRIORITIES FOR CONTINUING PROGRESS IN RESEARCH IN AGRICULTURAL EDUCATION

by

Dr. J. Robert Warmbrod
Chairman, Department of Agricultural Education
The Ohio State University
Columbus, Ohio

Sunday, March 23

8:00 - 8:30 a.m. Continental Breakfast SILVER CITY IV

8:30 - 10:00 a.m. SECOND GENERAL SESSION SILVER CITY III & IV

Presider: Nolan Arthur - University of Arkansas, Fayetteville

Facilitator: Bruce Simpson - Arkansas State Department of Education

Presentation of Papers

8:30 a.m. Assessment of Preservice Preparation by Recent Graduates of Agricultural Education Programs. Ismail bin Yahya and Michael F. Burnett, Louisiana State University

Discussant: Bob Terry, Oklahoma State University

9:00 a.m. Follow-up Study of Tennessee Vocational Agriculture Students. Clifton Ricketts, Middle Tennessee State Univ.

Discussant: Freddie Scott, University of Arkansas, Fayetteville

9:30 a.m. Attitudes of Pre-Service Agricultural Education Majors and Their Relationship to Variables Related to Early Field-based Experience. Jacquelyn P. Deeds, Mississippi State Univ.

Discussant: Gary Moore, Louisiana State University

10 - 10:30 BREAK

Sunday, March 23

10:30 - 12:00 p.m. THIRD GENERAL SESSION SILVER CITY

Presider: Willie J. Rawls - Fort Valley State College, Georgia

Facilitator: Wes Holley - Oklahoma State University

Presentation of Papers

10:30 a.m. Occupational Aspirations of Third Year Vocational Agriculture Students. Gregory P. Venable, Crowley High School and Michael F. Burnett, Louisiana State University

Discussant: Jasper Hayles, Arkansas State University

11:00 a.m. Academic Success of Former Vocational Agriculture Students in Postsecondary, Associate Degree, Agricultural Programs. Stanley Burke, Virginia Polytechnic Institute & State University

Discussant: Joe Kotrlick, Louisiana State University

11:30 a.m. Image of Agricultural Education Teacher Training Programs in Colleges of Education and Agriculture at Three Major Universities. John R. Crunkilton, Virginia Polytechnic Institute and State University, Larry E. Miller, The Ohio State University and Jasper S. Lee, Mississippi State University

Discussant: Tom McCall, University of Florida

12 - 1:30 p.m. LUNCH - SILVER CITY II

Sunday, March 23

1:30 - 3:00 p.m. FOURTH GENERAL SESSION SILVER CITY

Presider: Stanley Burke - Virginia Polytechnic Inst. & State University

Facilitator: Pete Braker - University of Arkansas, Fayetteville

Presentation of Papers

1:30 p.m. Adoption of Computer Technology by Agricultural Educators. Danny Cheatham, Mississippi State University, and Blannie E. Bowen, The Ohio State University

Discussant: Dr. Jim Beemis, Arkansas Cooperative Extension Service and Winrock International

2:00 p.m. Microcomputer Use and Needs in Louisiana Vocational Agriculture Programs. David Drueckhammer, University of Southwestern Louisiana, Joe Kotrlik and Gaylon Parton, Louisiana State University

Discussant: Dale Oliver, Virginia Polytechnic Institute & State University

2:30 p.m. A Comparison of Two Instructional Methods for Teaching Micro-Computer Competencies to Extension Personnel in Mississippi. Graydon Elliott, Mississippi State University

Discussant: Donna Graham, University of Arkansas, Fayetteville

3 - 3:30 p.m. BREAK

Sunday, March 23

3:30 - 5:00 p.m. FIFTH GENERAL SESSION SILVER CITY

Presider: Joe Kotrlik - Louisiana State University

Facilitator: Clifton Ricketts - Middle Tennessee State University

Presentation of Papers

3:30 p.m. The Relationship of Personality Types of Arkansas Cooperative Extension Service Faculty to Job Satisfaction and Performance. Donna L. Graham, University of Arkansas

Discussant: Jasper Lee, Mississippi State University

4:00 p.m. Relationship Between Urbanization and Supervised Occupational Experience Programs in Florida. C. E. Beeman, L. R. Arrington, and P. J. Wotoweic, University of Florida

Discussant: Martin McMillion, Virginia Polytechnic Institute and State University

4:30 p.m. The Relationship Between Participation in Selected FFA Activities and Job Satisfaction of Program Completers in Vocational Agriculture in Texas. Steven D. Fraze and Gary E. Briers, Texas A & M University

Discussant: Max McGhee, University of Florida

5:00 p.m. DINNER ON YOUR OWN

Monday, March 24

8:30 - 10:00 a.m. SIXTH GENERAL SESSION SILVER CITY

Presider: James Scanlon - University of Arkansas, Fayetteville

Facilitator: Jacqueline Deeds - Mississippi State University

Presentation of Papers

8:30 a.m. National Evaluation: Teacher and Student Perceptions of the FFA's Food for America Program. James D. White and Eddy Finley, Oklahoma State University

Discussant: Walter Taylor, Mississippi State University

9:00 a.m. Nominal Groups: An Effective Tool for Facilitating Decisions and for Promoting Satisfaction Among Conference Participants. Jon Gresham, Texas A & M University

Discussant: Eddy Finley, Oklahoma State University

9:30 a.m. Vocational Agriculture for the Year 2000. Joe Kotrlik, Louisiana State University and David Drueckhammer, University of Southwestern Louisiana

Discussant: Don Herring, Texas A & M University

10 - 10:30 BREAK

10:30 - 11:00 Summary, Remarks and Challenges - SILVER CITY III & IV

11:00 - 12:00 Business Meeting and Adjournment - SILVER CITY III & IV

FIRST GENERAL SESSION

WELCOME

"PRIORITIES FOR CONTINUING PROGRESS
IN RESEARCH IN AGRICULTURAL EDUCATION"

BY

DR. J. ROBERT WARMBROD
PROFESSOR AND CHAIRMAN
DEPARTMENT OF AGRICULTURAL EDUCATION
THE OHIO STATE UNIVERSITY

PRIORITIES FOR CONTINUING PROGRESS IN RESEARCH IN AGRICULTURAL EDUCATION*

J. Robert Warmbrod, Professor and Chairman
Department of Agricultural Education
The Ohio State University

I want to talk about the future of research in agricultural education. In doing so, I will organize my comments around two major points. The first point is the proposition that substantial progress has been made during the past 10 to 15 years in research in agricultural education. I will begin by attempting to substantiate that proposition. The second and more important point that I want to concentrate on is that, if progress is to continue--if we are to continue to get better--then we must give high priority to certain policies, programs, and commitments. The major part of the presentation is a description of what I propose some of these high priorities are.

What is the evidence or what are the arguments supporting the proposition that we are making progress? The most convincing case I can present is to contrast the nature of higher education in agricultural education experienced by a young person entering the profession today with that experienced by a person entering 15 years ago. For me the contrast is sharp when I compare the world of higher education in agricultural education the new assistant professor of the mid-1980s finds to what I experienced as a beginning assistant professor 25 years ago.

Today, research in agricultural education is a more visible and, I suggest, a more viable part of agricultural education. Beginning assistant professors of the 1980s are more competent in planning, conducting, and reporting research than were the beginning assistant professors of the 1960s and 1970s. Likewise, a person's progress and standing within the profession as well as an individual's promotion and growth within the university are clearly more contingent on research competence and productivity for those beginning their higher education careers in the 1980s than was the case for those who entered higher education one or two decades earlier.

Our colleagues entering higher education in agricultural education today not only have immediate opportunities—but are expected--to present refereed papers to regional and national research conferences and to publish in refereed journals. In fact, it is becoming more likely that the entering assistant professor will have published or presented a refereed research paper as a graduate student. A person entering the profession today has opportunities to publish in the Journal of the American Association of Teacher Educators in Agriculture, our 27-year-old journal that has progressed remarkably as a recognized refereed research journal. Other refereed journals to which our colleagues entering today may submit articles include the Journal of Vocational Education Research, the Journal of Extension, the NACTA Journal, and the recently initiated Journal of Vocational and Technical Education. By way of contrast, when I entered higher education, publication

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*Presented at 35th Annual Southern Region Research Conference in Agricultural Education, North Little Rock, Arkansas, March 22, 1986.

opportunities were primarily The Agricultural Education Magazine and a fledgling Journal of the American Association of Teacher Educators in Agriculture that was not even recognized within the profession as a refereed publication. Incidentally, a major debate in the mid 1960s was whether the name of The Agricultural Education Magazine should be changed to something like "Journal of Agricultural Education" so, according to the proponents of the name change, it would be recognized particularly outside agricultural education as a more scholarly publication.

My point is that evidence of progress in research in agricultural education includes the refereed research journals, the regional research conferences, and the annual National Agricultural Education Research Meeting. These activities demonstrate that progress is being made relative to the quality and rigor of research in agricultural education. Who would have guessed 10 years ago that in 1985 there would be almost twice as many papers proposed for the National Agricultural Education Research Meeting that were rejected as were accepted?

Further evidence of progress is the fact that faculty members are more visible and productive as researchers. Even though much of the research in agricultural education continues to be conducted by graduate students, there is no doubt that faculty members are more active producers of research as well as advisers of graduate students' research than was the case a few years ago. Clearly graduate programs in agricultural education, particularly doctoral programs, place more emphasis on competence in research methodology and design, data analysis, and scholarly writing than was the case previously. All of this contributes, I contend, to considerable improvement in what can be described as the methodological and technical aspects of research; for example, design, validity and reliability of instruments, internal and external validity, sampling, and statistical analysis. What agricultural education researcher--whether graduate student, beginning assistant professor, or tenured professor--would dare submit a research article or paper to the Journal of AATEA or to the National Agricultural Education Research Meeting that ignored mention of internal and external validity, validity and reliability of instruments, how nonresponse was handled if survey research, and details of the statistical analysis? Later in suggesting priorities for continuing progress, I will argue that progress during the past few years in the technical and methodological aspects of our research has not been accompanied by comparable improvement in another very important aspect of research, namely, the relevance, significance, and importance of problems and issues that we investigate.

So my first point is that substantial progress has been made, particularly during the past 10 to 15 years, in research in agricultural education. I want to make one additional comment before I suggest what our priorities should be if progress is to continue. As persons who have major interest and expertise in research, should we seriously consider the proposition that demonstrated progress in research has been accompanied by a lack of progress or, perhaps, waning interest in and attention to philosophical and scholastic matters in agricultural education? If I were to toss the most recent issue of the Journal of AATEA into this audience, is it more likely to hit or be caught by a researcher or a philosopher?

I propose that our highest priority for continuing progress in research in agricultural education must be that we pay greater attention to the significance and importance of the problems and issues that we research. The late H. M. Hamlin wrote 20 years ago, "Ideas and concepts are the first requisite for good research. . . . Research without important ideas is busy work." Most of our research is appropriately labeled "decision-oriented research." As such, the goal we seek is to generate new knowledge or new materials that contribute directly to policy and program development, revision, and improvement. So one of our highest priorities is to research important and significant problems and issues that pertain directly to the vital core of the substance of agricultural education, for example, teaching, learning, communication, leadership, and human development. In selecting problems for research, we also need to broaden our definition of agricultural education to include, in addition to vocational agriculture, extension education, communications, nonvocational education in agriculture, postsecondary education, and agricultural education in higher education.

Paul Vaughn described a concern for relevancy and significance of research in agricultural education in his "Heading Down the Road to Abilene" presentation at the Western Region Agricultural Education Research Conference in 1983. Vaughn proposed we examine our "sacred cows" to identify relevant problems and issues for systematic study. We have an abundance of crucial problem areas from which to select a research agenda.

Occasionally we hear comments, particularly from some of our colleagues in other departments in colleges of agriculture, that imply that there is a connection between the significance and importance of a problem and the methodology used to research the problem. The argument usually leads to an implication, if not an assertion, that equates experimentation with significant and important research. Such a point-of-view is a narrow and uniformed understanding of both the nature and purpose of scientific inquiry. The first test to be met by a potential research problem pertains to its significance and importance, not to the design and methodology required to solve the problem in a valid manner. Decisions about the significance and importance of potential research problems in a given area of specialization are largely judgmental, best made by persons whose substantive expertise is the area in which the research is being conducted.

Another dimension of the priority that we pay more attention to the significance and importance of what we research requires that we be careful about attempting to oversimplify very complicated phenomena. There is research in agricultural education, and in other areas of education, that, for all practical purposes, attempts the impossible. For example, we propose to change high school students' attitudes toward the world of work through a two-week unit of instruction; we attempt to alter the stereotypes students hold about certain occupations by having them view slides or video tapes; or we attempt to describe the extent to which a small segment of a student's total experience--participation in a student organization--contributes to the self-concept of the student. In each of these examples there is little doubt that we are dealing with important and significant concepts and ideas--attitudes, self-concept, perceptions and the like. We are not dealing with these important and complicated phenomena in a very sensible or scholarly manner unless the research demonstrates that we know and understand a great

deal about these psychological attributes, including how the attributes are acquired and altered. Research in agricultural education will not be considered significant and important if it is evident that the researcher is naive about the major ideas, concepts, and theoretical constructs basic to the research.

This first priority for continuing progress in research—attention to the significance and importance of what we research—leads directly to a second priority. Further progress and improvement requires that the investigation of important and significant problems and issues in agricultural education be solidly undergirded by what is already known. Problems in agricultural education cannot be researched competently unless the connection between what is being investigated and the accumulated pertinent theory and empirical knowledge is made explicit. This requires that the researcher have more than a casual acquaintance with the theory and related research that is basic to the investigation. A thorough knowledge of theory and related research that is basic to a given investigation may well be the difference between the research "scholar" and the research "technician." One of my colleagues puts it this way: "We should be so knowledgeable about the basic concepts, theory, and research pertaining to the topic we are studying such that we can engage, with confidence, in a conversation with two experts on the topic whose specialization is other than agricultural education."

Having expert knowledge of theory and related research germane to what we are investigating has several benefits. First, related research and theory assist the researcher in identifying and defining significant and important problems. Second, theory and related research provide the rationale for scientific hypotheses, a basic ingredient of high quality research. Third, related theory and research provide a framework within which the findings of research can be interpreted. And finally, but also very importantly, the findings of research that are undergirded with theory and related research are more likely to be cumulative; that is, the findings will contribute to an expanding and valid knowledge base. Building a knowledge base is a gradual and cumulative process. A legitimate criticism of research in agricultural education is that it is conducted frequently in isolated, fragmented segments with little attempt made to relate what is being researched to what is already known. Attention to this priority requires that researchers in agricultural education must become students of theory and research in the social and behavioral sciences and in education, as well as having a thorough knowledge of research in agricultural education.

This brings me to a third priority for continuing progress. It is imperative that we make more concerted and systematic efforts to synthesize the knowledge we have generated from research in agricultural education. I am not criticizing the Review and Synthesis of Research in Agricultural Education series published periodically by the National Center for Research in Vocational Education or the ten-year reviews in the Encyclopedia of Educational Research. It is impossible to digest and synthesize in one publication or one article what has been learned from research in all areas of agricultural education. The priority I am touting is that for each of the major areas of agricultural education—for example, supervised occupational experience—we accumulate, analyze, synthesize, and report the

knowledge that has been generated. What have we learned from the vast number of studies on this topic during the past 10 to 20 years? Are we accumulating a knowledge base that contributes to policy and program development and to further research? Not only would these digests of what we know be a boom for further progress in research, but think of its value for instruction that is more research-based for both undergraduate and graduate students.

A fourth priority for continuing progress logically follows. We must put more effort and resources into using the findings of research to develop and revise policies and programs. We are well known for leaving our research on the shelf. We must put higher priority on translating what we learn from research into recommendations for program and policy change. More directly, we must use research to change things. We must find out what the payoffs to research in agricultural education are. In too many cases, our research efforts end with the writing of a report that usually takes the form of a thesis or dissertation on the library shelf or a published journal article. More attention to implementing the findings of research has double benefits. First, policies and programs are improved, and second, additional significant and important problem areas appear that require further study and investigation.

The foregoing four priorities culminate in a fifth priority that requires little more than a statement of what it is. Research in agricultural education must be more programmatic. Researchers do not become scholars by studying a different topic every year. Significant and important topics are not researched competently and thoroughly with one study. The generation of cumulative knowledge requires, almost by definition, a series of related studies. And if program and policy changes are to be based on research, it is obvious that the case for improvement and change will of necessity require a broader research base than usually results from fragmented and isolated studies. A high priority goal for continuing progress in research in agricultural education is emphasis on programmatic research both by individual faculty members and by universities.

Now I propose three priorities for continuing progress that focus on the resources--personnel and financial—that, in my opinion, must accompany the five priorities presented to this point. Unless we give high priority to the following three concerns, progress relative to the concerns already described will be meager, if there is to be further progress at all.

The sixth priority that I propose is the allocation of the time of faculty members to conduct research. If any of the suggested priorities for continuing progress can be labeled as radical, I suspect this priority and the one that follows might well be described by that term, unfortunately, by deans and associate deans of colleges of agriculture and education. It's time we declared "no more business as usual!" Continuing progress in research in agricultural education requires that faculty members have time specifically allocated for research, which in turn means that teaching and service loads of individual faculty members be reduced. We have been naive too long in believing that we can be competent and productive researchers when our research responsibilities are performed in addition to a full load of teaching and service responsibilities. There are few faculties in research-oriented land grant universities, particularly faculties in colleges of agriculture, that would tolerate the arrangements for research that most faculties of

agricultural education experience as the routine mode of operation. I am convinced that further progress in research will be meager unless the research mission of faculties of agricultural education, accompanied by the allocation of faculty time to accomplish that mission, receives as high a priority as the teaching and service missions. To accomplish that goal with current levels of staffing and resources means that reductions have to be made in time commitments and financial resources allocated to teaching and service responsibilities or that additional staffing and resources need to be made available.

This leads, then, to a seventh priority, namely, additional financial resources to support research in agricultural education. Since the rationale that demands research be a viable function of academic units in land grant universities applies, without exception, to agricultural education, it follows that funding patterns to support research in other academic units are also applicable to agricultural education. In a sense, funding for research in agricultural education, particularly in colleges of agriculture, is an equity concern. If faculty members in other academic units are allocated time for research as a part of their regular university (resident instruction) appointments, then that should be the funding and time allocation pattern for research in agricultural education. If faculty members in other academic units, particularly colleges of agriculture, are allocated time for research and receive funding for research from experiment station funds, then that should be the pattern for funding research in agricultural education. The point I want to emphasize is that we must be more aggressive in asserting that agricultural education cannot be the exception to the rule when it comes to allocating financial resources for research, including the assignment of faculty time for research responsibilities. Agricultural education has been treated as the exception too long, both in terms of its expectations for quality and quantity of research and in terms of resources to support the research mission. I am not arguing that agricultural education be exempt from encouragement or even the requirement to secure outside funding for research. What I am suggesting is that to expect agricultural education to get all or a majority of its funding for research from outside sources is unrealistic and blatantly unfair unless that pattern for research funding is the norm for all academic units.

I want to reiterate what I propose as a seventh priority. Stated directly it is this: aggressive advocacy for financial support for research in agricultural education from the same sources and according to the same policies that are applicable to other academic units. The requirement and necessity for research in agricultural education parallels the mandate for research in other academic units. Consequently, funding for research in agricultural education should correspond to patterns for funding research in other academic units.

Priorities calling for the allocation of the time of faculty members to conduct research and for financial resources to support research in agricultural education lead directly to an eighth priority. We must continue to place major emphasis on developing further our competence to design, conduct, and report high quality research. We accomplish this priority through graduate programs that are designed to enhance the research knowledge and skill of persons entering the profession and through continuing education for all of us. We must strive to enhance our competence to select and define

significant and important problems and to be more scholarly in the use of theory and related research as well as becoming more expert in the methodological and technical aspects of design and statistical analysis.

I mentioned earlier that we have made more progress during the past few years with methodological and technical concerns; however, I quickly add that it is essential that we continue to make substantial progress here. One area that must receive particular attention is knowledge in the use, interpretation, and reporting of the more sophisticated multivariate statistical techniques. As we become more expert in the use of multivariate analysis techniques, we must avoid the temptation to adopt an attitude, sometimes observed, that implies that esoteric and sophisticated statistical techniques can be used to rescue, or even resurrect, a narrow, insignificant research effort. Relying primarily on statistics, even sophisticated techniques appropriately used, to signal high quality research and scholarship is effective primarily with two groups of individuals--those who are uninformed and naive, and consequently awed, with statistics and those who are too timid to ask questions. The expert researcher knows that statistics is a tool in decision making. Statistical analyses do not reveal decisions for the researcher; statistics only provides information, both descriptive and inferential, that can be used by the researcher in interpreting data and in making generalizations about the applicability of findings. Twenty years ago Professor Hamlin, who was quoted earlier, charged that one of our current obsessions was "elaborate statistical analysis, used as much to obscure as to illuminate." On more than one occasion I heard him caution that too frequently we attempt to substitute statistics for "stubborn and persisting effort to think straight," which was his definition of research.

The final priority I propose is a commitment to excellence and scholarship in the planning, conduct, and reporting of research. The better we get, the more rigorous should be the standards against which we judge our research. The standards we set must pertain to the significance and importance of the research, to the theoretical and empirical base for the research, as well as to the methodological and statistical appropriateness and accuracy with which the research is executed and reported. Almost every year there is discussion at the National Agricultural Education Research Meeting about increasing the number of concurrent sessions to allow more research papers to be reported since the number of paper proposals submitted exceeds considerably the number that can be accepted with the present format. I urge that we resist that temptation. The number of papers accepted should be a function solely of the quality and level of scholarship of the research, not the number of proposals submitted. Attention to a priority of commitment to excellence could result, I hope, in greater emphasis in the review process, both for presentation and publication, on the importance and significance of problems investigated, on the degree of scholarship demonstrated through the theoretical and empirical foundations for the research, on the rigor with which the research is designed and conducted, and on the clarity and accuracy of interpretation and reporting.

I'll summarize briefly. I think the evidence is clear that we have made substantial progress during the past 10 to 15 years with the research dimension of agricultural education. With that progress, we are obligated to give high priority to continuing that progress and to further improvement.

First, we need to pay more attention to the significance and importance of problems and issues that we investigate. Significant problems in agricultural education are likely to be those that challenge conventional wisdom rather than those where the primary end sought is to substantiate or justify current practice and opinion. Second, we must place a high priority on designing and conducting research that is firmly grounded in theory and related research which contributes, in turn, to the further building of a valid knowledge base. Third, we must pay more attention to what we have learned from our research; and then, for a fourth priority, put that knowledge to work to change things. Too much of our research never leaves the library shelf or the pages of the journal. These four priorities lead to a fifth that is crucial. Our research must be more programmatic.

To accomplish these priorities requires that faculty members devote a higher portion of their time to research with that level of commitment being at least equivalent to time allocations for teaching and service responsibilities. Increased time allocation for faculty for research requires increased financial support for research in agricultural education, especially from regular sources used to fund research in other academic units in the land grant universities. Increased time and resources for research requires, also, a renewed commitment on our part to increase further our competence to design, conduct, and report research. All of this culminates in a commitment to higher standards of excellence and scholarship demonstrated through research. The more progress we make, the better we must be.

SECOND GENERAL SESSION

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ASSESSMENT OF PRESERVICE PREPARATION BY RECENT GRADUATES OF AGRICULTURAL EDUCATION PROGRAMS

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INTRODUCTION

Preservice teacher education in agriculture continues to expand with respect to the number of components as it adjusts to the demands of a continually changing world of agriculture. Critical roles for the vocational agriculture teacher demand numerous critical competencies. These competencies spawn three basic dimensions of the preservice training program. They are general education, technical agriculture components, and professional training. A training program that is an "appropriate mix" of all three dimensions should be capable of preparing a competent and effective agriculture teacher.

In assessing the quality of teacher education programs, it is important to recognize the difference between perceived and performed roles of the teacher. This is particularly true in the case of the vocational agriculture teacher. Perceived roles are regarded as those roles the teacher will be required to assume. They arise from the curriculum goals and objectives of the preservice program. Performed roles refer to those roles the teacher does assume. Unfortunately, there often seems to be a role-preparation incongruence. This apparent incongruence appears to be the result of inadequacies in the preservice training program the teacher experiences.

PURPOSE AND OBJECTIVES

The primary purpose of this study was to ascertain the perceptions of teachers of vocational agriculture in Louisiana relating to the quality of their preservice preparation in agriculture. In this investigation, the principal goal was to determine the "what should be" of preservice teacher education in agriculture. In order to achieve this goal, the following specific objectives were formulated:

1. To identify those competencies vocational agriculture teachers perceived they acquired from their preservice training programs.
2. To identify those competencies vocational agriculture teachers perceived they should have acquired from their preservice training programs.
3. To determine the discrepancy between acquired and desired competencies as perceived by vocational agriculture teachers.
4. To identify major curricular areas of preservice teacher education perceived by vocational agriculture teachers to be in need of change.

REVIEW OF RELATED LITERATURE

In this study the researchers were striving to achieve a dual goal: to evaluate the "What has been" and assess the "what should be" of preservice teacher education in agriculture. For a distinction between needs assessment and evaluation enterprises refer to Witkin (1984).

Teacher preparation in vocational agriculture has received considerable attention by researchers in agricultural education. There have been studies which focused specifically on the preservice phase of the training process at state, regional, and national levels. Even

where studies were directed primarily at assessing inservice training needs of the vocational agriculture teacher, implications were usually drawn for preservice training programs.

Cotrell, Chase, and Molnar (1972) developed over 300 professional competencies critical for effective vocational agriculture teaching. Since then a number of other competency sets have been developed. In a national study, 1981, Lawrence and Mallillo identified specific areas of vocational agriculture teaching that needed greatest improvement. Cole and Oades (1980) reported a departmental self-study project at the Oregon State University to assess needs of their teacher training program. General pedagogical competencies of beginning vocational agriculture teachers in Pennsylvania were studied by Hawk (1977).

Apart from the much broader professional and pedagogical competency needs considered essential for beginning teachers of agriculture, research has also focused on other needs. Technical agricultural competencies have been studied by Stitt (1970) in Illinois, Yoder and Bender (1976) in Ohio, and Lindahl and Crawford (1980) in Iowa. In 1981 Shippy studied the preservice agribusiness competency needs of agriculture teachers in Delaware. In a national study, Polsan (1984), surveyed supervisors and teacher educators to determine common core agricultural mechanics competencies needed by all vocational agriculture teachers.

With the advent of the computer and its numerous uses, in vocational agriculture there is already research into the microcomputer competency needs of the teacher of agriculture. Hudson (1983) reported on a study that determined competencies needed to utilize the computer. Miller and Foster (1984) assessed microcomputer competency needs of teachers of agriculture in Iowa and Nebraska. In Mississippi, Cantrell and Byler (1983) assessed the attitudes, needs, and delivery system for microcomputer applications by both agricultural and extension educators. They recommended the microcomputing in preservice teacher education.

Conclusions and recommendations of the studies referred to above addressed preservice teacher education. Polson (1984), for example, concluded that "The findings of the study have implications for preservice and inservice teacher education programs throughout the United States" (p. 21). On the need for microcomputer skills in vocational agriculture during the preservice phase of teacher education, Miller and Foster (1984), p. 35) recommended that "Undergraduate majors should learn to use software packages" and that "competencies identified as being highly important should be included in preservice coursework." In addressing general professional competency needs of the teacher of agriculture, Lindahl and Crawford (1980) recommended that teacher educators consider the needs of the beginning teacher when developing training programs. Cole and Oades (1980) encouraged other agriculture teacher education programs to follow the example they set by conducting assessment of their total programs.

METHODS AND PROCEDURES

The population of this study included all Louisiana vocational agriculture teachers with five years or less teaching experience who had obtained at least one of their degrees from one of the agricultural teacher education programs in Louisiana. Sixty-one teachers were identified. Since this population size was small, a census survey was

conducted. An instrument was developed by the researchers.

The instrument utilized six-point force-choice Likert-type scales. The scales addressed competency needs (55 items) of the beginning vocational agriculture teacher, competencies (55 items) the respondents attained in their preservice program, and needed improvements in the undergraduate preparation programs (15 competency clusters).

There were 5, 6-point scales in the research instrument. The first of these was the Degree of Need Scale (DNS). It described the perceived professional and technical competency needs of the beginning vo-ag teacher. The scale ranged from "Great Need" (6) to "No Need" (1). A second major scale was the Level of Attainment Scale (LAS) which assessed the perceived level of competencies acquired by the vo-ag teacher from his/her undergraduate program. Again, 6 indicated "Great Attainment" while 1 represented "No Attainment." Together the two scales constituted the response format Witkin (1984) referred as "multiple-response design."

The overall experiences of the vo-ag teachers with their undergraduate teacher training programs were assessed using a satisfaction scale. Again there were six points to this scale too: "Very Satisfied" at point 6 and"Very Dissatisfied" at point 1. A fourth scale was constructed using the concept of "content." Improving the undergraduate training curricula requires certain basic changes. The content of courses offered could be appropriately changed (decrease or increase) in scope and depth. The highest possible rating of this scale was "Requires Large Increase" to be scored 6 and the lowest was "Requires Large Decrease" with a score of 1. Finally, there was a scale on the concept of "improvement," defined as need for improved quality of instruction. It was scaled as 6 for "Great Improvement Needed" and 1 for "No Improvement Needed."

Most of the items included in Part A and Part B of the instrument were adopted from the master list of competencies developed by Cotrell et al. (1972). The rest of the items were either adapted from that list or constructed independently. Items on the technical agricultural competency-clusters were adopted from McCracken (1981), general education competency-clusters from Clouse and Brown (1981) and work of Crunkilton and Hemp (1981) on professional education competency clusters. The instrument was validated by a panel of agricultural teacher educators. They were requested to critically validate each section and item on the instrument and make suggestions for needed improvements. In particular, they were to check for item and concept clarity. In addition, they were to provide suggestions to improve the overall validity and reliability of the instrument.

After three mail-outs and two reminders, a total response of fifty-four (88.52 percent) was achieved. All the cases were usable.

Generally, the instrument was reliable. The overall scale of preservice programs assessed had a Cronbach's alpha reliability coefficient of .97. The professional competency needs and competencies acquired had reliability coefficients of .97 and .96 respectively. Relatively lower coefficients resulted for the scales of perceived technical competency needs (r=.83) and technical competence acquired (r=.82). However, the least reliable scale was for the satisfaction rating or the undergraduate programs (r=.80).

FINDINGS

Background Information

Forty-nine (90.7%) of the 54 responding teachers were graduates of the four teacher preparation programs in Louisiana. There was a steep decline in the numbers (Ns=7, 6, and 3) of vocational agriculture teachers for three years in a row, 1980-1982 following the highest aggregate of 13 graduates in 1979. Regarding the major content areas taught, 51 (94.4%) said they taught orientation courses in agriculture, 93% (n=50) each taught plant science and agricultural mechanics, with the teaching of forestry reported least by only 55.6% (n=30) (Refer to Table 1). Table 2 indicates the primary activities the teachers reported they conducted as part of their total vocational agriculture program. Nearly all the teachers reported they conducted shop and laboratory (n=53), Supervised Occupational Experience Programs (n=52), and Future Farmers of America (n=51) activities. Three of the remaining four areas were reported by less than 505 of the vo-ag teachers. Two of these were programs for young and adult farmers (n=17) and for special needs students (n=17).

Table 1

Major Content Area of Vocational Agriculture Currently Taught by Vocational Agriculture Teachers

Area	N	Percent[a]
Orientation to Vo-Ag	51	94.4
Plant Science	50	92.6
Agricultural Mechanics	50	92.6
Animal Science	49	90.7
Agricultural Leadership	48	88.9
Career Information and Guidance	44	81.5
Agribusiness	39	72.2
Energy Conservation	33	61.1
Environmental Protection	32	59.3
Forestry	30	55.6

Table 2

Program Activity Currently Conducted by Vocational Agriculture Teachers

Activity	N	Percent[a]
Shop and Laboratory Activities	53	98.1
Supervised Occupational Experience Programs, SOEP	52	96.3
Future Farmers of America, FFA	51	94.4
Advisory Council Activities	29	53.7
Cooperative Agricultural Education, CAE	26	48.1
Adult and Young Farmer Programs	17	31.5
Programs For Special Needs Students	17	31.5

[a]Each percent is expressed on a "Yes - No" scale. Only the "yes" responses are reported in this table.

Evaluation of Programs

All 48 of the competency needs of the Vo-ag teacher were rated as moderately needed ($\bar{x}$=4.00) or higher. However, only 24 items described as "substantial need" (x=5.00) or higher are herein reported. Refer to Table 3 for mean ratings of competency, need and attainment levels and their resultant discrepancy values.

The highest mean rated competency need was teacher's ability to motivate students' interest in the FFA ($\bar{x}$=5.39). It was followed very closely by a 5.36 mean rating for the teacher's demonstration of "regard" for, and an interest in, students as individuals. In third place was the ability to dispense approved disciplinary measures if and when necessary ($\bar{x}$=5.32). Among the other highly rated competency needs were that teacher should be able to determine student needs and interests ($\bar{x}$=5.30), select teaching techniques, tools and equipment for a lesson (x=5.25), introduce a lesson (x=5.17), construct and administer tests (x=5.04) and summarize a lesson (x=5.00).

Teachers were asked to rate the level of attainment of the 48 competencies resulting from their preservice preparation. There was a significantly lower rating for each competency in relation to its need. These mean ratings ranged from 4.67 as the highest to 2.30, the lowest. The teachers believed their ability to introduce a lesson (x=4.67) was the greatest attainment. It was followed very closely in second and third places by the attainment of ethical and professional standards (x=4.63) and lesson plan write-up (x=4.62). Refer to Table 3 for other mean ratings.

Discrepancies between the competency needs and attainment of these needs as computed ranged from the highest value of 2.30 and lowest of .15. Only two of the 48 competencies had discrepancy values of 2.00 or higher. However, only the second highest (d=2.15) discrepant competency relating to preparation of state and national VEDs, FFA and travel reports appears in Table 3. The highest discrepant item was not among the 24 highest rated items. Sixteen and seven of the 24 d-values have respective ranges of 1.00 to 1.99 and .40 to .99. Refer to Table 3.

Presented in Table 4 are seven technical agriculture competency clusters preservice programs generally conduct. The teachers "degree of need" ratings of these were quite high, a range of 4.83 to 5.48. Possession of agricultural mechanics and engineering-related skills was rated highest ($\bar{x}$=5.48), followed by those of crop-related sciences ($\bar{x}$=5.30), animal-related sciences ($\bar{x}$=5.28), and soil-related sciences ($\bar{x}$=5.25). The mean rating for possession of knowledge and skills related to application of high-technology in agriculture was the lowest (x=4.83).

The "degree of attainment" rating was much lower for each competency cluster in relation to its need. The highest mean rated ($\bar{x}$=4.63) cluster was with respect to animal-related sciences followed by the soil-related sciences cluster ($\bar{x}$=4.53). High technology-related skills cluster had the lowest mean rating of 3.15. Refer to Table 4.

Also displayed in Table 4 are the discrepant values (all negative) between the "degree of need" and "degree of attainment" for the seven competency clusters. Four of these values were greater than 1.00 while the remaining three were less than 1.00. The highest value (d=1.68) relates to skills bearing on use of high-tech in agriculture and the lowest ($\bar{x}$=.65) relates to the animal science cluster of skills.

Assessment of Program Improvement Needs

Table 5 presents two sets of mean ratings for the three main program areas (general education, technical agriculture and professional education) of undergraduate curriculum. First, there are ratings for content change (i.e. an increase or decrease in the scope and depth of courses offered). The mean ratings for the five clusters of general education ranged from 2.85 ("requires substantial decrease") to 3.89 ("requires some decrease"). Computational skills and abilities received the highest rating of 3.89, followed by abilities and skills in clear, logical thinking ($\bar{x}$=3.57).

The six competency clusters under the technical agriculture program area received modest ratings ranging from 4.56 to 3.77, with the highest ($\bar{x}$=4.56) bearing on agricultural engineering and mechanics. Five of the 15 professional education competency clusters were rated 4.00 or higher and the remaining nine averaged 3.50 but less than 4.00. The highest mean rated cluster was high technology applied to vocational agriculture ($\bar{x}$=4.74) followed by need for courses in discipline ($\bar{x}$=4.30) and program and time management ($\bar{x}$=4.13).

Table 3

Mean Ratings of Competency Needs of the Beginning Vocational Agriculture Teacher as Perceived by Louisiana Agriculture Teachers

Competency	N	Mean Rating: Need Level[a]	Mean Rating: Attainment Level	Discrepancy Value[b]
Motivate in students, interest in FFA	52	5.39	4.15	1.24
Demonstrate a regard for, and an interest in, students as individuals	53	5.36	4.21	1.15
Carry out approved disciplinary action when warranted	53	5.32	4.00	1.32
Determine student needs and interests	53	5.30	4.30	1.00
Formulate and uphold acceptable standards of student behavior in classroom and laboratory	53	5.30	4.17	1.13
Maintain working relationships with the school administration and faculty	53	5.28	4.11	1.17
Recognize potential and actual problems of students	53	5.28	3.83	1.45
Select teaching techniques and tools and equipment for a lesson	53	5.25	4.51	.74
Prepare state and national reports for FFA, VEDS, travel, etc.	54	5.24	3.09	2.15
Plan, organize, conduct, and evaluate supervised occupational experiences (SOE's) programs	54	5.22	3.69	1.53
Plan, develop, and use personal and professional time effectively	54	5.20	3.28	1.92
Design, develop, and construct tests (essays, completions, multiple choice, true-false, matching, etc.)	53	5.19	4.26	.93
Maintain the ethical and professional standards expected of the vocational agriculture teacher	54	5.19	4.63	.56
Introduce a lesson	53	5.17	4.67	1.50
Present a concept or principle through a demonstration	53	5.17	4.38	.79
Prepare, maintain, and repair instructional materials	54	5.13	3.85	1.28
Formulate and establish evaluation criteria for student performance and a system for grading	53	5.11	3.87	1.24
Use and maintain instructional equipment and materials (e.g. audio visuals, duplicators, photocopies, etc.)	54	5.11	3.91	1.20
Prepare and use a priority list for purchasing equipment and supplies	54	5.09	3.48	1.61
Write a lesson plan	53	5.09	4.53	.56
Devise, use, and maintain an information storage and materials (micro-computers and word processors)	54	5.07	3.19	1.88
Construct and administer tests	53	5.04	4.26	.78
Summarize a lesson	53	5.00	4.53	.47
Conduct individual and group conferences with students	53	5.00	3.60	1.40

[a]There were seven different sets of mean ratings which were tied. They were broken using the standard deviation values.

[b]Discrepancy value, d=Perceived Degree of Need-minus Perceived level of Attainment of Need. All values are negative.

Table 4

Mean Ratings of Technical Agriculture Competency Needs of the Vocational Agriculture Teacher as Perceived by Louisiana Agriculture Teachers

Technical Area	N	Mean Rating: Need Level	Mean Rating: Attainment Level	Discrepancy Value[a]
Possess knowledge and skills in agricultural mechanics, mechanization, and engineering (i.e. arc welding, woodwork, electricity, small engined, tractors, etc.)	54	5.48	4.02	1.46
Possess knowledge and skills in crop science (e.g. horticulture, grain crops, turf grass, forages, etc.)	54	5.30	4.50	.80
Possess knowledge and skills in animal science (including livestock, poultry)	54	5.28	4.63	.65
Possess knowledge and skills in soil science (e.g. soil formation, classification, fertility, management, etc.)	53	5.25	4.53	.72
Possess knowledge and skills in agribusiness/ farm management (e.g. financial planning, marketing, etc.)	54	5.00	3.50	1.50
Possess knowledge and skills in the use and conservation of wildlife, natural resources, energy use and conservation	54	4.96	3.65	1.31
Possess knowledge and skills related to high technology as applied in the agriculture industry	54	4.83	3.15	1.68

[a]Discrepancy value, d=Perceived Degree of need minus perceived level of attainment of need. All values are negative.

Table 5

Mean Ratings of Undergraduate Competency Clusters Perceived As in Need of Content Change and Improvement in Quality of Instruction

Competency Cluster	N	Content Change	Instruction Quality Improvement
I. General Education			
Computational skills and abilities (examples - mathematics, computer science, etc.)	54	3.89	3.89
Abilities, skills, competencies in clear and logical thinking	53	3.57	3.19
Communicative skills and abilities (examples - speech, technical writing, etc.)	54	4.43	3.33
Knowledge and abilities related to and use of the democratic process	52	3.23	3.15
Social and human sciences (examples - sociology, psychology, political science, anthropology, etc.)	54	2.85	2.94
II. Technical Agriculture			
Agricultural engineering/mechanics	52	4.56	3.85
Environmental and conservation sciences (energy, natural resources, and wildlife)	53	4.13	3.55
Plant-related sciences	53	3.94	3.34
Animal-related sciences	53	3.83	3.25
Agribusiness-related sciences	53	3.81	3.55
Soil sciences (courses in weed science, soil physics, chemistry, microorganisms, fertility, and management)	53	3.77	3.38
III. Professional Education			
High technology applied to vocational agriculture (e.g. word processors, micro-computers, etc.)	53	4.74	4.00
Discipline	53	4.30	3.81
Program and time management	53	4.13	3.53
Educational technology (courses in the use of audio-visual aids, equipment; preparation of instructional materials, etc.)	53	3.96	3.60
Program planning, development and evaluation	53	3.93	3.60
Execution of instruction (e.g. teaching techniques, methods, skills, etc.)	53	3.93	3.74
School-community relations	53	3.89	3.72
Planning of instruction	53	3.87	3.70
Cooperative Agricultural Education (CAE)	53	3.83	3.40
Guidance and counseling	53	3.81	3.62
Professional role and development	52	3.77	3.46
Young and adult farmer education programs	52	3.52	3.27

Second, ratings for instructional quality improvement (defined as "need for improved quality of instruction"). The highest rated ($\bar{x}$=3.78) general education competency cluster was computational skills and abilities while the lowest ($\bar{x}$=2.85) was social and human sciences. All six technical agriculture clusters were rated above 3.00 but less than 4.00. The professional education clusters mean ratings ranged from 3.27 to 4.00. Refer to Table 5.

CONCLUSIONS AND RECOMMENDATIONS

1. The vocational agriculture teachers do not seem to believe that the beginning vacational agriculture teacher has great need for all of the 55 perceived professional and technical agriculture competencies in order to be competent and effective. None of the competencies had a mean rating of 6.00 or "great need."
2. The undergraduate teacher training curricula probably are deficient in the results they set out to achieve intheir programs since the highest mean rating for competencies attained was described as only "Moderate Attainment."
3. The discrepancies between competencies needed and attained are substantively large (d = 1.00) for more than 50% (n=28) of the 55 competencies.
4. Basically, the vocational agriculture teachers were not very satisfied with their total undergraduate teacher education curricula.
5. Though they indicated that they were only "somewhat satisfied" with their undergraduate curricula that prepared them, the teachers saw no need to increase the course content in the major program areas of the three key components (general education, technical agriculture, and professional preparation) of the preservice programs.
6. In spite of the significant discrepancies between the perceived competency needs and attained competencies, the vocational agriculture teachers did not feel the need for drastic improvement in the quality of instruction already provided in he undergraduate training curricula.

Recommendations

The implications of the above conclusions suggest a number of recommended practices and research efforts. These are outline below.

Recommended Practices

1. The faculty of each undergraduate teacher training program should adequately revise its program goals and objectives to reflect the changing needs of the beginning vocational agriculture teacher in terms of general, professional and technical education.
2. The Vocational Agriculture Section of the State Department of Education, cooperating with faculties of the undergraduate training programs should design, develop, and implement an annual statewide inservice program for all new vocational agriculture teachers within the first year of their teaching. The program should be based on data from a reliable feedback mechanism devised to determine apparent deficiencies of the beginning teacher prior to first semester of teaching.

Recommended Research

1. The Vocational Agriculture Section of the State Department of Education should fund a longitudinal study on the supply and demand of vocational agriculture teachers in Louisiana. Such a study would reveal trends and help make projections for the future.

2. A study should be conducted to assess the attitudes of vocational agriculture teachers toward the (a) content areas they teach or should teach and (b) the program of activities they conduct or need to conduct. Such a study would help determine the critical factors responsible for the de-emphasis or neglect of some of the content areas and program activities which are integral parts of the total vocational agriculture program.

3. Each faculty of the four undergraduate programs should conduct a program evaluation to determine program strengths and weaknesses so as to help make the necessary adjustments to meet especially the professional and technical competency needs of their graduates.

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Research Paper Critique

ASSESSMENT OF PRESERVICE PREPARATION BY RECENT GRADUATES OF AGRICULTURAL EDUCATION PROGRAMS

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I feel the study was conducted with close attention to detail. A large volume of data was collected and as a result I see the potential for several later spinoff studies from this particular one. For example, I can see an investigation that might compare the perception of teachers based upon the number of years of experience they have had in the field to see whether or not their perceptions change over a span of time. I feel that topic is a very important one to all of us, one that is always timely. Each of us, in our program probably should be conducting this type of study on a continuous basis. I think this might be an example of our keynoter's address last night that satisfies part of that requirement but even more importantly supplies some information we need for program improvement.

The three mail-outs and two reminders to secure response represents a consistent concerted effort to secure a high rate of return. I think a return of 88.5% from a group of inservice agriculture teachers is impressive. Particularly when you see most of them jumping on their horses and riding off in all directions at once. To get that many of them nailed down long enough to respond is admirable. The validity and reliability of the instrument appears to me to be well tested prior to use. The six point grading scale enhances the discrimination ability of the instrument and should have offset much of the midscale response tendency that an odd numbered scale would have provided. I think that it was also interesting to see the use of the term discrepancy value or the measure discrepancy value. It is a simple, yet straight forward way of comparing responses and illustrating the differences perhaps in a little different way. As I look at it, the needs ratings that these teachers provided seem to affirm that the teacher education programs are being relatively successful in focusing on the skills of teaching. I

think that is a gratifying finding -- one that was not addressed specifically in the study but I think it is an inference from it.

My review of the study spawned several questions, some of which may be important only to me and some of which may have been answered either in your presentation and/or the paper and I just failed to pick up on the answers but I would like to review those questions. First of all, was a microcomputer system employed in the review of literature? If so, I wonder why some similar studies from the southern region were not included as part of the review. Do we have a problem in the southern region with some of our studies getting into the microcomputer system. I can remember, for example, that we have had at our institution at least three studies since 1975 that were very highly related to this type of effort. I suspect that many of the rest of you had similar studies that might have been valuable to review.

Why were the perceived roles of vocational agriculture teachers so important? Not aguing that they are, but I would wonder whether or not a better case could be built for emphasizing this particular aspect of this study. What is the real difference in a perceived role which is defined, as the role a teacher is required to assume; and a performed role which is defined, as the role the teacher does assume. I am not sure I see the difference in those definitions, and they might help me a little bit, in fact, that would clarify it.

Mike did address the question as to the sources of the competency items which I did not pick that up in the review of the paper. I think he indicated that they were picked up from the trail study, that was the primary basis for it. I too, have a question about the FFA emphasis. Do I understand that three respondents had no involvement with conducting FFA activities? I wonder if that is possible in the Southern region? My guess is it would have to be specialized teachers but that was an item that struck me as being rather different for the majority of us, I hope. Might it have been beneficial to assist the individual components of the technical areas? For example, with ag mechanics: Might it have been beneficial to look at arc welding, electricity, small engines, etc. separately and in more detail rather than combining all those and looking at them strictly as ag mechanics or as a topic area. It seemed to me that information of this type could be very helpful in working with the departments who provide service forces for us, which I believe is essentially the basic pattern for most of us. We might be able to work more closely with those departments in strengthening what needs to be taught.

References were made in the study to fifteen competency clusters in the undergraduate preparation program. What are these? I did not find the fifteen competency clusters. In the methods and procedures, references were made to fifty-five items on the competency scales. However, discussion under evaluations of program refers to only forty-eight. To coin a term from the

study this is a discrepancy value (all negative)". And I do not understand this, I need you to explain.

Now, I had some questions regarding the conclusions and I know from Mike's presentation that he did not have a great deal of time to spend a great deal of time on the conclusion, but if you will permit me, let me read several statements and ask a question at the end. First, the study concluded that "vocational agriculture teachers do not seem to believe that a beginning vocational agriculture teacher has great need for all of the 55 perceived competencies.... and that none of the competencies have a mean rating of great need." Does that mean that they are not important? Just because they did not have a rating of great need does that mean that we can bypass them as not important?

Secondly, "the undergraduate teacher training curriculum probably are deficient in the results they set out to achieve in their programs since the highest mean rating for competencies attained was described as only moderate attainment." My question regarding that is: Are programs inadequate or are students not achieving? Where does the blame really lie? Do the people providing the programs have to accept total blame for that?

Thirdly, "the discrepancies between competencies needed and attained are substantively large for more that 50% of the 55 competencies." My question on this is: Is it necessarily bad? I think not. Instead this may point up to us the need for a concentrated effort of inservice education. It may show us that we can not get it all done, as we all know, in preservice preparation programs. That is the main fact being a very ample justification for inservice.

Fourth, "basically the vocational agriculture teachers were not very satisfied with their total undergraduate teacher education curriculum." Is it that or is it a possibility that they are asking for help? Might your study have provided a vehicle for the teachers to say to you and to us, that now that they are out in the field, now that they have reached the moment of teaching, that they need some help. Again some rational for inservice education.

Fifthly, "though they indicated that they were only somewhat satisfied with their undergraduate curricula that prepared them, the teachers saw no need to increase the course content in the major program areas of the three components." Perhaps the problem is not the content, but perhaps with how it is taught. Is that a possibility?

Again, I would say an interesting study, I commend you for conducting it, I would say also its one of those that each of us should probably be involved in with each years group of graduates and utilize the data that we discovered. My commendations for a good study, Mike.

FOLLOW-UP STUDY OF TENNESSEE VOCATIONAL AGRICULTURE STUDENTS

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FOLLOW-UP STUDY OF TENNESSEE

VOCATIONAL AGRICULTURE STUDENTS

From economic, legislative, and political perspectives, evaluation of education programs is of major concern. If vocational agriculture differs from other educational programs, it is because they may be expected to be more accountable. The Vocational Amendments of 1976 specifically emphasize program accountability and the need for evaluative data concerning the effectiveness of programs in delivering educational services. One measure of accountability is placement of students. Some states have passed specific legislation requiring programs to be accountable for expenditures. Florida has recently enacted legislation that site minimum placement and completion standards for all vocational programs. Therefore, an important source of evaluative data for vocational agriculture programs is knowing the placement of the graduates of these programs. Since farmers comprise only two to three percent of the population, there is often a concern from administrators and the public of the accountability or importance of vocational agriculture programs in Tennessee.

PURPOSE AND OBJECTIVES

Since placement of students is one measure of accountability, the primary purpose of this study is to describe the placement of the vocational agriculture graduates in Tennessee as determined by the vocational agriculture teachers. The objectives of the study are reflected in the following research questions:

1. What percent of the vocational agriculture graduates are full-time farming?
2. What percent of the vocational agriculture graduates are part-time farming?
3. What percent of the vocational agriculture graduates are employed in Agribusiness?
4. What percent of the vocational agriculture graduates continued their education?
5. What percent of the vocational agriculture graduates are employed in Non-Agribusiness?
6. What percent of the vocational agriculture graduates are unemployed?

METHODOLOGY

Sample Investigated

The study was a descriptive study. All teachers which had taught for more than one year were included in the study. This included 212 vocational agriculture teacher in Tennessee.

Instrumentation

In order to obtain requisite information, a mail questionnaire was developed. Although placement and follow-up instruments existed within the literature (Iverson and Brown, 1979), the author developed the instrument to meet the objectives of this study. A panel of vocational agriculture teachers reviewed the validity of the content of the instrument and revisions were made. The instrument was pilot tested with a group of vocational agriculture teachers.

Data Gathering Procedure

The Commissioner of Agriculture for the State of Tennessee, William Wayne Walker, III initiated this study as part of Governor Lamar Alexander's Master Teacher Plan. Therefore, a cover letter from Commissioner Walker explaining the nature of the study, along with the questionnaire was mailed. Each teacher was asked to complete the questionnaire on their students for the following years for which they had taught: 1983, 1978, 1973, 1963, and 1953. The questionnaires were returned to Commissioner Walker's office. A list of respondents and non-respondents was kept by the Commissioner's staff. After four weeks, a second letter was sent to the vocational agriculture instructors reminding them of the questionnaire. Due to the time restrictions for Commissioner Walker, an analysis of the difference between respondents and non-respondents was not conducted. A response rate of 72 percent was attained.

Data Analysis

Once the questionnaires were collected by the Commissioner of Agriculture the data were coded on the questionnaires and then punched on data processing cards through the facilities of the Middle Tennessee State University computer center. Arrangements were made with the computer center to have the data analyzed utilizing the center's Honeywell 6000 computer. Data were submitted for analysis using appropriate statistics utilizing the SPSS computer program.

Findings

The results of the placement percentage of all years (1953-1983) is presented in Table 1. Those students farming full-time consisted of 12.60 percent. The percentage placement of vocational agriculture students for all years is presented in Table 2. For the 1953 graduates, 25.37 of the vocational agriculture graduates farmed full-time. In 1983, 11.35 percent of the vocational agriculture graduates farmed full-time.

For all years combined, 23.31 percent of the vocational agriculture graduates farmed part-time. For the 1953 graduates, 20.15 percent farmed part-time, whereas the 22.89 percent of the 1983 graduates were farming part-time.

For agribusiness, there was a percentage placement of 15.29. This varied from 10.34 percent for the 1953 graduate to 13.08 percent for the 1983 graduates. However, there was a higher percentage of agribusiness placement for the graduates of 1963, 1973, 1978.

The research question showing the biggest change was continued education. The 1953 graduates continued their education at a rate of 5.97 percent. However, the 1983 graduated continued their education at the rate of 24.74 percent. Overall, the rate of continued education was 16.46 percent.

For all years, 28.48 percent of the graduates entered non-agribusiness professions. This varied from 32.84 for the 1953 graduates to 23.95 percent of the 1983 graduates.

The unemployment rate for the graduates for all years is 2.35 percent. This varied from a zero rate for the 1953 graduates to 3.57 percent for the 1983 graduates.

Conclusions

1. Once farm placement, agribusiness placement, and continuing education were combined, a 67.46 percent placement rate was attained.

2. An unemployment rate of only 2.35 percent existed for vocational agriculture graduates.

3. The percentage of students going into full-time farming has declined over the past thirty years, while those graduates that are part-time farming remained constant.

4. The percentage of students being employed by agribusiness companies has increased over the last thirty years.

5. Vocational agriculture graduates that are continuing their education has increased four fold in the past thirty years.

Educational Importance of the Study

1. Vocational agriculture teachers should teach part-time farming operations as a realistic alternative to full-time farming.

2. Vocational agriculture teachers should work with guidance counselors and students to make sure student's curriculum is planned for continued education.

3. Agribusiness occupations should continue to be a viable part of the vocational agriculture curriculum.

4. The unemployed rate of vocational agriculture graduates is well below the national average indicating employability of the graduates, even though the job may not be agriculture related.

TABLE 1

Percentage Placement in All Years (1953-1983)

Farming	
(1) Full-time Farming	12.60 percent
(2) Part-time Farming	23.31 percent
Agribusiness	
(3) Agribusiness Management	3.56 percent
(4) Agribusiness Laborer	9.74 percent
(5) Agribusiness Government	.90 percent
(6) Agribusiness Other	1.09 percent
Continued Education	
(7) Vocational-Technical Schools	4.41 percent
(8) College or University	11.29 percent
(9) Post College	.76 percent
Non-Agribusiness	
(10) Professional	2.47 percent
(11) Government (Fed., State, Local)	1.62 percent
(12) Salesman or Wage-earner	17.54 percent
(13) Military	4.83 percent
(14) Technical or Managerial	2.01 percent
Related Information	
(15) Unemployed	2.35 percent
(16) Deceased	.75 percent
(17) Other	.75 percent

Research Paper Critique

FOLLOW-UP STUDY OF TENNESSEE VOCATIONAL AGRICULTURE STUDENTS

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According to Cliff Ricketts in "Follow-up Study of Tennessee Vocational Agriculture Students, vocational agriculture programs are different from other educational programs because vocational agriculture programs are expected to be more accountable. The primary purpose of this study is to describe the placement of vocational agriculture graduates in Tennessee.

In an effort to collect data for the follow-up agriculture teachers were instructed in a questionaire to complete information concerning former students for the years of 1983, 1978, 1973, 1963 and 1953. From the information obtained from the study. Although Ricketts asserts that the agriculture programs are successful in placing students, the success rate is still debatable. The question to be answered is how reliable is the data. In analyzing the success rate, one would primarily be concerned with the accuracy of the information obtained from the records for high school students and the extent to which the records exist dating back to 1953.

In analyzing his own follow-up, Ricketts contends that vocational agriculture teachers should teach part-time farming operations as a realistic alternative to full-time farming. Farming instructions for part-time is the same as that for full-time.

In conclusion these are several questions to be answered here. The study covered several areas of placement in agriculture. These were competencies which could be described as essential for all areas.

The study is one that all agricultural educators will be faced with where placement of students is concerned.

ATTITUDES OF PRE-SERVICE AGRICULTURAL EDUCATION MAJORS AND THEIR RELATIONSHIP TO VARIABLES RELATED TO EARLY FIELD-BASED EXPERIENCE

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ATTITUDES OF PRE-SERVICE AGRICULTURAL EDUCATION MAJORS AND THEIR RELATIONSHIP TO VARIABLES RELATED TO EARLY FIELD-BASED EXPERIENCE

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Attitudes are evaluative predispositions that have consequence for programs that individuals undertake and the way they carry them out, in addition to the way individuals act toward other people (Cohen, 1964). Attitudes as precursors of behavior are important elements in the pre-service teacher education program. One of the major components of that program is field-based experience. Experience-based learning to bridge the gap between the world of actual practice and study has long been a goal in the preparation of professionals in all fields (Byrne & Wolfe, 1976).

Early field-based experiences in education are activities in teacher preparation that occur away from the university, with students or school personnel, that are separate from and prior to student teaching (Elliott, 1978; McMillion & Hoover, 1974; Webb and Others, 1981). The two reasons that have most general support for early experience are: to allow students to make an informed career choice and to allow pre-service teachers to try on the role of teacher (Boucher, 1978; Elliott & Mays, 1979; Overbeck & Quisenberry, 1976; Reed & Hill, 1981).

Very little research has been conducted to document the claims of the benefits available from the use of field experience based learning (Byrne & Wolfe, 1976). There appears to be a serious contradiction between the growing body of criticism of the present practice of field-based experience and the abundant testimonial supporting the benefits (Zeichner, 1980). Much

confusion and contradiction surround the data concerning field-based experience.

The purpose of this study was to determine the extent of relationships that existed among individual demographic variables and factors that are part of the early field experience, and the attitudes of the pre-service teachers toward themselves as teachers and toward teaching vocational agriculture.

OBJECTIVES OF THE STUDY

The following research questions were investigated for the pre-service teachers participating in early field-based experience Autumn Quarter 1984, at The Ohio State University.

1. What is the attitude of students who have and have not completed the early experience program toward themselves as teachers and toward teaching vocational agriculture?
2. What is the relationship between the attitude of pre-service teachers toward teaching vocational agriculture at the end of early field-based experience and the conditions of the experience?
3. What is the relationship between the attitude of pre-service teachers toward teaching vocational agriculture and toward themselves as teachers and the extent of professional activities completed during early field-based experience?
4. What is the relationship between the attitude of pre-service teachers toward teaching vocational agriculture and toward themselves as teachers at the end of early field-based experience and selected demographic variables?

METHODS AND PROCEDURES

This study was descriptive survey research of a comparative nature.

Population. The population of the study consisted of all pre-service teachers who participated in Early Field-Based Experience, Autumn Quarter, 1984, at The Ohio State University. The 23 participants were randomly assigned to pretest and control groups prior to the pre-experience seminar in August of 1984 to control for the effects of pretesting. No difference between pretest and control groups was found.

In addition, data on a comparison group of all students who had completed the same Introduction to Agricultural Education course as the participants but had not participated in early field-based experience were collected to increase generalizability and reduce threats to validity. The data indicated no significant differences between the participants and comparison groups.

Instrumentation. The data for the study were collected via five researcher-developed instruments: (1) Myself as a Teacher (alpha .71), a semantic differential measure. (2) Teaching Vocational Agriculture (alpha .91), a four-point Likert-type scale. Both instruments were pilot and field tested for reliability and validity. (3) The Perceived Program Quality instrument, a seven-point scale, was designed to evaluate vocational agriculture programs that were sites for early field-based experience on program components and appropriateness of the program for an early field-based experience site. (4) The Professional Activities Completed Instrument was an interview schedule used to collect debriefing data upon return to campus. (5) The Participation Inventory reported all Future Farmers of America activities in high school and Agricultural Education Society activities at

the university. The last three instruments were determined to have content validity by a panel of experts made up of OSU teacher education faculty and graduate students with vocational agriculture teaching experience. Due to the nature of the instruments, no reliability tests were used.

Data Collection. The early field-based experience pre-service teachers assigned to the pretest group completed instruments in a group as a part of the pre-field experience seminar. The post experience attitude measures for the study participants and the comparison group were completed individually during an appointment with the researcher.

Cooperating teachers were mailed the Teaching Vocational Agriculture instrument after all students had completed the experience. Non-respondents were followed-up by phone for a 100% response.

Perceived Program Quality instruments were completed by the 1983-1984 Ohio Joint Agricultural Education Staff. Some data such as GPA and university rank were collected from existing university records.

The FFA and AES participation inventories were completed during the post experience seminar or during the scheduled interview times. All instruments were completed prior to the Professional Activities Completed interview and all interviews were conducted by the researcher.

Data Analysis. Statistics employed included: frequencies, measures of variability, measures of central tendency, and measures of association. Statistical analysis was done by means of the Statistical Package for the Social Sciences Version X (SPSS, Inc., 1983).

SUMMARY OF THE FINDINGS

Participants and non-participants indicated a positive attitude toward teaching and toward themselves as teachers with only slightly higher attitude scores upon completion of early field-based experience. The analysis of data indicated no statistical difference between the early field-based experience participants at the end of the experience and the comparison group of non-participants on measures of attitude toward themselves as teachers as indicated by the t value -.42 or toward teaching vocational agriculture t value -1.54 (Table 1).

TABLE 1
ATTITUDE TOWARD SELF AS A TEACHER AND TOWARD TEACHING VOCATIONAL AGRICULTURE SCORES OF THOSE WHO COMPLETED EARLY FIELD BASED EXPERIENCE AND THOSE WHO DID NOT

Variable	Group	Number of cases	Mean	Standard Deviation	t
Attitude toward self as a teacher	Comparison	11	5.66	0.77	-0.42
	Study	23	5.76	0.54	
Attitude toward teaching	Comparison	11	2.98	0.13	-1.54
	Study	23	3.09	0.21	

The cooperating teachers of early field-based experience pre-service participants reported positive attitudes toward teaching vocational agriculture. However, a negligible relationship with a Pearson r of .05, shown on Table 2, was found between the attitude of cooperating teachers and the corresponding attitude of the pre-service teachers working with them.

Perceived program quality relationship to the attitude of pre-service teachers toward teaching vocational agriculture had the strongest association of the study. A moderate relationship ($r = .32$) between the variables was reported (Table 2).

TABLE 2
RELATIONSHIP BETWEEN THE ATTITUDE
OF PRE-SERVICE TEACHERS TOWARD TEACHING
VOCATIONAL AGRICULTURE AT THE END OF EARLY FIELD-BASED
EXPERIENCE AND COOPERATING TEACHER ATTITUDE
AND PERCEIVED PROGRAM QUALITY

Variable	Student attitude toward teaching mean = 3.09
Cooperating teacher attitude toward teaching vo-ag mean = 3.05	Pearson r = .05
Perceived program quality	Pearson r = .32

The quality and depth of the early field-based experience as indicated by the extent of professional activities completed had a low relationship as indicated on Table 3 with the attitude of pre-service teachers toward teaching vocational agriculture (rho = -.28) and toward themselves as a teacher (rho = -.21).

The demographic variables selected for comparison, shown on Table 3, FFA participation (rho = .24), AES participation (rho = -.14) and years of vo-ag (rho = -.11), had a low relationship with the attitude of pre-service teachers toward teaching vocational agriculture. The same demographic variables had all positive negligible relationships with the attitude of pre-service teachers toward themselves as teachers (FFA rho = .03, AES rho = .03, AES rho = .01 and years of vo-ag rho = .04).

TABLE 3
RELATIONSHIP BETWEEN THE ATTITUDE OF PRE-SERVICE TEACHERS AT THE END OF EARLY FIELD-BASED EXPERIENCE TOWARD TEACHING VOCATIONAL AGRICULTURE AND TOWARD SELF AS A TEACHER AND SELECTED VARIABLES

Variable	Attitude toward teaching mean = 3.09 Spearman rho	Attitude toward self mean = 5.76 Spearman rho
Extent of profess. activities completed	.28	.21
FFA participation	.24	.03
AES participation	-.14	.02
Years of vo-ag	.11	.04

CONCLUSIONS

Based on the data collected for pre-service teachers enrolled in early field-based experiences Autumn Quarter 1984, the researchers concluded that no significant change occurs in the attitude of pre-service teachers toward themselves as teachers or toward teaching vocational agriculture as a result of early field-based experience. Due to the data indicating most students participating had junior standing, the participants may have been beyond the exploration stage and had well-developed positive attitudes prior to the experience.

The data collected indicated that the attitudes of cooperating teachers and pre-service teachers completing early field-based experience are independent.

The data indicated placement in perceived high-quality programs may be associated with the attitudes of pre-service teachers at the completion of early field-based experience. This indicates that greater importance should be placed on the type of instructional program facilities and equipment, FFA

and supervised occupational experience programs of the schools where the students are placed than on the attitudes of cooperating teachers toward teaching. This finding has implications for development of future site selection procedures to provide facilities and instructional programs which instill more positive attitudes toward the profession.

The attitudes of pre-service teachers toward teaching or toward themselves as teachers are not related to the extent of professional activities completed during early field-based experience according to the data. The interviewer found that the experience varied greatly from strictly observation to the experiences of substitute teaching with no supervisor present. The extent of activities completed seemed to have more association with the enthusiasm of students about teaching shown during the interview than was reflected by the attitude scores.

The researcher concluded as a result of the data that the attitudes of pre-service teachers toward teaching vocational agriculture and toward themselves as teachers are independent of the extent of participation in FFA and AES and previous enrollment in high school vocational agriculture.

RECOMMENDATIONS

1. A specific early field-based site selection procedure should be developed to help insure the exposure of pre-service teachers to high-quality, well-balanced programs which meet or exceed state program standards.
2. As a result of the interviews with the pre-service teachers returning from the experience, the researcher would recommend that cooperating teachers should be carefully selected and be required to attend an inservice workshop or class on supervision. The field experience

participants indicated that most cooperating teachers did not fully understand the assignments required for the completion of the experience.

3. Further research is needed to examine factors associated with the high variability in the extent of professional experiences completed. More uniform experiences with the predetermined experiences completed should be the goal of the early field-based experience program. This would allow additional course work to be designed with the assumption that students have some specific experiences in common.
4. Research should be conducted to determine why students are not completing the experience earlier in their teacher education programs and what relationships the commitment to teaching of the pre-service teacher has to the timing of early field-based experience in the individual teacher education program.

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Research Paper Critique

ATTITUDES OF PRE-SERVICE AGRICULTURAL EDUCATION MAJORS AND THEIR RELATIONSHIP TO VARIABLES RELATED TO EARLY FIELD-BASED EXPERIENCE

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I would like to commend John for having the papers refereed this year and keeping with that view I want you to know that after I compared my discussing remarks I had three people referee my discussant remarks. They have agreed that I can go ahead and say what I'm going to say. The title of my remarks is "Charade". A charade is the acting out of something. I have two children, a five year old and a four year old. I hear them constantly saying you be "He-Man" and I'll be "TeeLa." You have to be five and four year olds to know who "He-Man" and "TeeLa" are. They are the Lone Ranger and Tonto of today. My children go through elaborate charades in acting things out. Sometimes I wonder if agricultural education research is not a charade? Do we in agricultural education to through charades? Is this research conference a charade? Are the people who are presenting papers going through a charade? And are people, who are like me, standing up here reacting going through the charade?

Let me explain what I'm saying. If you go back to 1939, and read the book, The Sabertooth Curriculum, by J. Abner Peddiwell, you will discover that during the cave age, it was decided that we needed a school. There were going to be three topics to be taught. The first topic was "Fish Grabbing." Because we had the streams running by the cave with fish and the cave men would get out there and they would grab the fish. The second topic to be studied would be "Horse Clubbing." There were horses running around and the cave men would get out there and club the horses for a food source. And the third topic in the curriculum was "Tiger Scaring." The sabertooth tigers would come out of the mountains, and you had to get fire branches and thrust in their faces to scare them off. So that was the curriculum in the early schools.

As these schools evolved we got very sophisticated. We had the overhand horse club, the sidehand horse club, the double fisted horse club, and we got very sophisticated in teaching horse clubbing, fish grabbing and tiger scaring. We got very much involved in the techniques of what we were doing. Then the glacier came floating down, and the water got muddy and no longer could you see the fish in the stream to grab them. Yet, we still taught fish grabbing. Tigers do not like wet water so they left. So instead we had bears, and the bears weren't afraid of the fire branches. The horses couldn't run in the wet terrain, so they went to the east where the land was dry and the shy and speedy antelopes came in.

Yet in the schools they still taught the traditional curriculum. And so the modern people said let us change and look at the real problems that we are experiencing. And the elders said, Oh, No. When we teach horse clubbing we're teaching strength. And when we teach tiger scaring, we're teaching courage. We're teaching the techniques, that's what's important, not actually the content of what we're teaching.

As I look at agricultural education research, I'm concerned that we get more caught up with technique and not the problems being researched. I have long wanted to get up and address this conference on a paper entitled, "The Effects of Wearing Two Colored Socks and Chewing Gum on Welding Skills." I propose to do such a study, where some students wear red socks and some wear green socks, some chew gum and some don't chew gum and we teach them welding skills. I think that if I designed the study beautifully, had tight controls, no one would ever get up and say Moore this is garbage. This is not a real problem. But as long as the procedures were correct, they would probably say Hey, this is OK.

What are we studying in agricultural education research? Well, we're studying what one group thinks of concept Y. We are studying what brands of computers we should have in agriculture departments. We are studying things about extension programs, when we have major problems addressing our vocational agriculture profession. We have the new standards which are about to wipe out a lot of vocational agriculture programs. We have teachers losing summer programs. Extension agents are getting ready to go down the drain. So we're out studying what one group thinks about something else. It seems like we're going through the motions of research. It appears to me that graduate student research has become an exercise in how to do it. With little regard for the significance of the problem.

I challenge you to identify three doctoral dissertations which have been done in agricultural education which have made an impact on the profession. Can you do that? I can identify three agricultural education dissertations which have made an impact on the profession. I think when we identify research topics, we use three criteria. And I'm as guilty as anybody. Number one

criteria is how many journal articles can we get out of it? Number two, how quickly can it be done? and number three, will the state department fund it? You may ask, what's all this got to do with Jackie's paper? Well, I'm getting there. Maybe I'm going through a charade. But I'm getting to Jackie's paper.

I think it's time we quit researching research and research the real problem. Jackie's topic is significant and it is appropriate for study. Pre-Service experiences exist, we often neglect their study, so I think it is real appropriate for study. It is a worthy topic of study. Sometimes I wonder if we do have worthy topics. Looking at Jackie's paper, she has a brief review of literature, but it is adequate. It is on target and it sets the stage for her study. She has a rational for what she is doing. I have heard some papers here that really do not have rationals. That was a good rationale. I applaud Jackie for using a comparison group and a split half pre-test procedure in her design. The major criticism I have of the paper is not of the research, it is the instrumentation section. In the copy of the paper that I had, Jackie told what five instruments she used. But she did not tell how many items were on the instrument. Her transparencies covered that. But I really cannot blame Jackie. She only had a limited time to prepare the paper. And when I received it I only had a few days to prepare my reaction. I think we are going through a charade when we have people present research and then do not have time to prepare for it. It's not a fault of the research, it is a factor of time. When she did her presentation today, she did emphasize and detail her instruments. So I feel much more comfortable today with her instruments because I see the number of items and I have a better feel for the instruments. Jackie had four objectives. In her paper she addresses each of her objectives, she presents her findings. Her statistical analyses was appropriate. She used some correlations. She had two different tables with correlations. She might have been able to put all the correlations on one table. The only question I have about her statistical analysis, is she used years of vocational agriculture as one of the variables, which would tell me that this is a ratio or interval data and she could probably have used a Pearsons Correlation instead of the Statistical Package for the Social Sciences Version X. Since I do not have the instruments it is hard to say that. Her conclusions related to her objectives. Her findings were on target. Basically, Jackie asked the question: Does early field experience affect attitude? There are two plausible answers. She said, no or it is possible that the instruments were not sophisticated enough to measure it. One instrument had eight items. I do not know if that is sophisticated enough to catch an attitudinal change. As you all sat there and listened to Jackie's paper you could tell it was a quality paper. It was on target and I commend her for good research. My exhortation to you is, let's not go through charades.

THIRD GENERAL SESSION

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OCCUPATIONAL ASPIRATIONS OF THIRD YEAR VOCATIONAL AGRICULTURE STUDENTS

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OCCUPATIONAL ASPIRATIONS OF THIRD YEAR VOCATIONAL AGRICULTURE STUDENTS

Each year, thousands of high school students throughout the United States schedule vocational agriculture as part of their secondary curriculum. With the variety of courses offered today, sometimes one wonders why students schedule the courses they do. Is it curiosity of the subject matter that draws their attention, or maybe the fact that there were no other courses available which fit into their schedules? It may be that the student has future aspirations to pursue a career in an area related to these courses.

It is usually during these high school years that students make one of the most important decisions of their lives--that being the choice of a career (Molnar & Dunkelberger, 1981). Scores of factors enter into this decision. Vocational teachers and/or courses they teach have the potential of playing an important role in this decision-making process (Dunkelberger, Molnar, & Adrian, 1981).

Pupils are offered the opportunity to begin preparation for their selected fields of work through subject matter learned in high school. No matter what the chosen area of work may be, a student's basic foundation may and should be developed while in high school (McCracken, Barrick, & Beard, 1984).

This basic foundation is developed from a combination of various factors. These factors may include items as age, occupational aspirations, place of residence, educational plans, and parental occupation and education (Eaddy, 1968). The influence of specific factors on individuals may vary, but these factors as well as others do enter into the individual's development.

The knowledge of the aforementioned factors and influences may, in the future, help teachers to prepare students to achieve their educational and occupational ambitions.

Purpose and Objectives

The purpose of this study is to determine the occupational aspirations of third year vocational agriculture students in Louisiana. The specific objectives of the study include:

1. to describe the population through use of various demographic factors;
2. to identify those persons and courses bearing an influence on students' educational and occupational choices; and
3. to determine if relationships exist among selected demographic and career factors.

METHODOLOGY

Population and Sample

The population in this study was students enrolled in Vocational Agriculture III in Louisiana high schools during the 1984-85 school year. The vocational agriculture programs in the state were identified through the use of the "1984-85 Staff and Teachers' Directory" for

Louisiana vocational agriculture teacher (prepared by the Louisiana State Department of Education). (Simmons, 1984)

As reported by the Louisiana State Department of Education-Vocational Agriculture Section, there were approximately 3,282 students enrolled in Vocational Agriculture III courses in Louisiana during the 1984-85 school year. According to Krejcie and Morgan (1970), the needed sample size for a population of this size is 341.

A stratified cluster sampling procedure was used for selecting the sample in the study. A random sample of 30 vocational agriculture programs was selected. These programs were stratified based on state FFA areas and was proportionally representative of the programs in each area.

Following the selection of vocational agriculture programs, a 100% sample of Vocational Agriculture III students within each program was selected. A letter was mailed to the vocational agriculture teachers in each of the 30 schools drawn for the sample. The letter included a brief explanation of the study and a request to participate in the study. The final decision regarding participation in the study was determined by a response from the teachers in two questions: "Do you have one or more students enrolled in Vocational Agriculture III?" and "Are you willing to participate?" A postcard, enclosed with the letter, was used by the vocational agriculture teacher for his/her response. Those that would participate in the study were also asked to indicate the number of Vocational Agriculture III students in their department.

Of the 30 programs selected, seven did not meet the criteria for participation in the study. Alternates were selected to replace those seven, and the alternates met both criteria for inclusion in the study.

Instrument

The instrument for the study consisted of questions dealing with personal information, self-related factors, family-related factors, and school-related factors, and occupational and educational-related factors in career plans. This instrument was a modified version of the instrument used by Vanik S. Eaddy in his dissertation at Louisiana State University in 1968 (Eaddy, 1968).

Content validity of the instrument used in this survey was established through a review by a panel consisting of high school vocational agriculture teachers, secondary school administrators, secondary guidance counselors, and teacher educators. Results were noted and revisions were made based on the suggestions from this panel.

Data Collection

The final instrument was prepared and distributed by mail to the selected sample. Instruments distributed included sufficient students forms for all Vocational Agriculture III students (as indicated on participation return postcard).

Follow-up phone calls were made to all participants who had not returned the instruments within two weeks of the original mailing. Twenty-three of 30 schools and 366 students responded to the study. This gave a 77% return rate of the schools. Additional follow up would have been fruitless since school had ended.

RESULTS

Description of Respondents

Grade Level

Respondents indicated the grade in which they were presently enrolled. The majority of students (316 or 86%) were enrolled in the eleventh grade. In addition, there were 41 students (11%) in the tenth grade, and nine students (2%) in the twelfth grade.

Sex

There were 348 male students (96%) and 16 female students (4%) who participated in the study.

Age

Students' ages varied as shown here. One student was 15 years old, 161 students (44%) were 16 years old, 147 students (41%) were 17 years old, 43 students (12%) were 18 years old, and ten students (3%) were 19 years old or over. Four students did not respond to the question. As indicated above, most of the students (85%) were either 16 or 17 years old.

Reasons For Enrollment

The majority of the students (194 or 53%) said they enrolled in vocational agriculture because they had an interest in an agricultural career (see Table 1). The next most frequently mentioned reason (49 or 14%) was that vocational agriculture was recommended by another student. Thirty-eight students (10%) said they enrolled because they liked the vocational agriculture teacher.

In addition, 35 students (10%) indicated reasons in the "other" category. Some of these which were specified were: the course if fun, easy grade (credit), personally wanted to, interested in FFA, and like shop work.

Career Objective

Fifty-four students (15%) said they would pursue a career in a field of agriculture and 85 students (23%) said they were considering a career in a field of agriculture (See Table 2). Therefore, 139 students (38%) were at least interested in an agricultural career. In addition, 162 students (44%) said they were undecided on a career option, and 65 students (18%) indicated they were not interested in a career in the field of agriculture.

Table 1

Reasons for Enrollment

Reason	N	%
Recommended by another student	49	14
Recommended by teacher	5	1
Recommended by guidance counselor	8	2
Recommended by parent(s)	20	5
Interest in an agricultural career	194	53
Liked the vocational agriculture teacher	38	10
No other electives available	17	5
Other	35	10
TOTAL	358	100

Note. Eight students did not respond to this question.

Table 2

Career Objectives of Respondents Related to Agriculture

Objective	N	%
Will pursue a career in agriculture	54	15
Considering a career in agriculture	85	23
Undecided on a career	162	44
Not interested in a career in agriculture	65	18
TOTAL	366	100

Number of Children in Family

Respondents were asked to indicate the number of children in their family. Almost three-fourths of the students were from families of one to four children. Of these, 153 students (43%) said there were three to four children in the family while 115 students (32%) said there were one to two children in the family. (see Table 3).

Table 3

Number of Children in Family

Number	N	%
1 - 2 children	115	32
3 - 4 children	153	43
5 - 6 children	56	15
7 - 8 children	27	7
9 or more children	12	3
TOTAL	363	100

Note. Three students did not respond to this question.

Father's Education

Regarding their father's education level, almost three-fourths (74%) of the students indicated that their fathers had attained a high school diploma or higher. There were 155 students (43%) indicating their father had a high school diploma. Ninety-three students (26%) said their father had less than a high school diploma. Fifty-four students (15%) said their father had attended vocational or business school or had completed some college work, and 37 students (10%) said their father had a college degree. There were 22 students (6%) saying they were uncertain or the question did not apply. Five students did not respond to the question.

Mother's Education

The majority of students (209 or 57%) indicated their mother had a high school diploma. There were 63 students (17%) who said their mother had less than a high school diploma, 46 students (13%) indicated their mother attended vocational or business school or had completed some college work, and 32 students (9%) said their mother had a college degree. Fourteen students (4%) said they were uncertain or the question

did not apply, and two students did not respond to the question. Over three-fourths of the students (79%) indicated their mother had attained a high school diploma or higher.

Parental Support of Continuing Education

Over nine-tenths of the students (93%) said their parents were at least encouraging about them continuing their education. One hundred forty-four students (40%) indicated their parents were strongly encouraging and 121 (34%) said their parents were encouraging. Sixty-eight students (19%) said their parents were fairly encouraging. On the negative side, 12 students (3%) said their parents were discouraging, eight students (2%) indicated their parents were fairly discouraging, and six students (2%) said parents were strongly discouraging. Seven students did not respond to the question.

Parental Participation in School Activities

Of the responses, 112 students (31%) said parents sometimes participated in school activities. There were 80 students (22%) indicating parents seldom participated while 73 students (20%) said their parents never participated in the school-sponsored activities. Fifty-two students (14%) said parents often participated in activities and 45 students (12%) said the level of parental participation was fairly often. Four students did not respond to the question.

FFA Membership

Number of years of FFA membership was requested of students. Over two-thirds (250 or 68%) of the students indicated they had been a member of the FFA for three years. Seventy-three students (20%) were a member for two years, 28 of the students (8%) said they were a member for one year, and 14 students (4%) had never been a member of the FFA. One student did not respond to the question.

Course Choice/Counselor

Students were asked whether or not they had discussed course choices with the guidance counselor and if they had, the degree of help given. There were 246 students (67%) saying they did, while 117 students (32%) said they had not discussed course choices with the counselor. Three students did not respond to this question.

Of those who indicated they had discussed course selections with their counselor, 160 students (65%) said the counselor was helpful, 57 students (23%) said the counselor was very helpful, and 30 students (12%) said the counselor was not helpful.

Course Choice/Vocational Agriculture Teacher

The question of whether or not students had discussed course choices with their vocational agriculture teacher was asked and if they had, the degree of help given. There were 187 students (52%) saying they did discuss course choices with the vocational agriculture teacher

while 176 students (48%) said they had not. Of those who responded yes, 116 students (62%) said the vocational agriculture teacher was helpful, 62 students (33%) said he was very helpful, and eight students (4%) said that the vocational agriculture teacher was not helpful. Three students did not respond to the question.

Occupational Plans/Counselor

Whether or not students discussed their occupational plans with the guidance counselor and the degree of help given are noted below. There were 199 students (55%) that had not discussed occupational plans with the counselor while 164 (45%) said they did. Three students did not respond to the question.

Of those students who had discussed their occupational plans with the guidance counselor, 108 (66%) said the counselor was helpful, 33 students (20%) said the counselor was very helpful, and 23 (14%) said that the counselor was not helpful.

Occupational Plans/Vocational Agriculture Teacher

There were 189 students (52%) saying they did discuss their occupational plans with their vocational agriculture teacher while 174 students (48%) said they did not. Three students did not respond to this question.

Of those students who had discussed their occupational plans with the vocational agriculture teacher, 120 students (63%) said that he was helpful, 56 students (29%) said he was very helpful, and 14 students (7%) said the vocational agriculture teacher was not helpful.

When Occupational Choice Was Made

Seventy percent of the students had made their occupational choice by the eleventh grade. There were 117 students (32%) who indicated that they made their choice in the eleventh grade, 69 students (19%) in the tenth grade, 42 students (12%) in the ninth grade, 25 students (7%) who made their choice in the eighth grade, and four students (1%) in the twelfth grade. A total of 105 students (29%) said no choice had been made. Four students did not respond to the question (see Table 4).

Educational Plans

When asked about their educational plans for the future, 137 students (38%) said they planned to complete high school, 118 students (33%) said they would attend vocational or business school or some college, and 101 students (27%) indicated they planned to obtain a college degree. Seven students (2%) indicated they planned to drop out of high school. Three students did not respond to this question. A total of 61% of the students in the study indicated completion of some higher formal education as their goal (see Table 5).

Table 4

When Occupational Choice Was Made

When	N	%
Eighth grade or below	25	7
Ninth grade	42	12
Tenth grade	69	19
Eleventh grade	117	32
Twelfth grade	4	1
No choice has been made	105	29
TOTAL	362	100

Note. Four students did not respond to this question.

Table 5

Educational Plans

Plans	N	%
Drop out of high school	7	2
Complete high school	137	38
Vocational/business school or some college	118	33
College degree	101	27
TOTAL	363	100

Note. Three students did not respond to this question.

Influences on Educational and Occupational Choices

The influence of certain factors on the educational and occupational choices of students in Vocational Agriculture III were examined. Three specific areas were assessed and the findings are shown below.

Influential Courses

Students were asked to rate the top five courses they had taken in high school bearing an influence on their educational and occupational plans. The ratings are presented in Table 6 from most influential to least influential. Vocational agriculture was rated as the most influential course with a mean ranking of 2.82, while math ranked second with a mean ranking of 3.55.

Influential Persons Toward Occupational Choice

Responses to the ranking of the five most influential persons toward a student's occupational plans were observed and the results are shown in Table 7. The father and mother ranked highest with the first (mean rank=2.83) and second (mean rank=2.94) positions respectively.

Influential Persons Toward Educational Plans

Concerning their future education, students in the study indicated the people bearing the most influence toward their educational plans. Ratings are indicated in Table 8 from most influential to least influential. The mother and father were ranked highest with mean ranks of 2.33 and 2.67 respectively.

Cross Classification of Selected Demographic Characteristics

Selected demographic characteristics and career factors were examined for independence using the chi-square analysis technique and the findings are presented in this section.

Educational Plans by Father's Education

The independence of the educational plans of the students and the fathers' education was examined and the significant chi-square revealed that the variables were not independent ($x^2_9=33.07$, $p<.05$). Thirty-seven students (10.9%) indicated their father had a college degree. Within this group, there is a tendency to have higher educational plans. Eighteen of these students (48.6%) planned a college degree, 11 students (29.7%) planned to attend vocational or business school or some college, and eight students (21.6%) planned to complete high school.

Ninety-two students' fathers had less than a high school diploma. Of these, 97.8% planned to complete high school and/or pursue further education. Only 15 students (16.3%) of this group planned to get a college degree.

Table 6

Student Opinion Regarding Influence of Courses on Educational and Occupational Choices

Item	Mean rank[a]	SD	Rank
Vocational agriculture	2.82	1.97	1
Math	3.55	1.90	2
Science	4.30	1.78	3
English	4.47	1.68	4
History	4.72	1.59	5
Health & Physical Education	4.72	1.80	6
Civics	5.39	1.22	7
Other vocational courses	5.66	1.11	8
Art	5.70	0.94	9
Music	5.72	0.92	10
Foreign Language	5.87	0.59	11

[a]Mean rank was calculated as an average of the ranks assigned to each item. Any item not ranked among the top five was assigned a value of six.

Educational Plans by Mother's Education

Upon examination of the educational plans of the students and their mothers' educational level, a significant chi-square was found indicating that the variables were not independent ($x^2_9=35.02$, $p<.05$). Of the students whose mother had either attended vocational or business school or some college (13.2%), or had a college degree (9.2%), a trend was shown to pursue a higher level of education. Within these two groups, a total of 37 students (47.4%) planned to pursue a college degree, 24 students (30.8%) planned to attend vocational or business school or some college, and 14 students (17.9%) planned to get a high school diploma.

There were 63 students reporting their mother's education to be less than than a high school diploma, 26 students (41.3%) were to go to vocational or business school or some college, and nine students (14.3%) were planning to earn a college degree.

Table 7

Student Opinion Regarding Influence of Specific Individuals on Occupational Choices

Item	Mean[a] rank	SD	Rank
Father	2.83	1.90	1
Mother	2.94	1.90	2
Friend	4.80	1.51	3
Brother or sister	5.01	1.57	4
Grandparent(s)	5.11	1.42	5
Vocational agriculture teacher	5.11	1.44	6
Person in the occupation	5.12	1.55	7
Other relative	5.25	1.33	8
Coach	5.69	0.94	9
Guidance counselor	5.70	0.82	10
Media	5.72	0.99	11
Others	5.79	0.95	12
Academic teacher	5.79	0.79	13
Principal	5.84	0.62	14
Other vocational teacher(s)	5.96	0.33	15
Clergyman	5.98	0.23	16

[a]Mean rank was calculated as an average of the ranks assigned to each item. Any item not ranked among the top five was assigned a value of six.

Reasons for Enrolling by Career Objective

A significant chi-square ($x^2_6=41.25$, $p<.05$) was found when examining the reasons students enrolled in vocational agriculture courses and their career objective. There were 232 students who indicated they were interested in an agricultural career. Of these, 118

Table 8

Student Opinion Regarding Influence of Specific Individuals on Educational Choices

Item	Mean rank[a]	SD	Rank
Mother	2.33	1.65	1
Father	2.67	1.78	2
Friend	4.88	1.44	3
Grandparent(s)	5.01	1.43	4
Brother or sister	5.02	1.46	5
Vocational agriculture teacher	5.12	1.43	6
Other relative	5.23	1.28	7
Person in the occupation	5.42	1.24	8
Guidance counselor	5.65	0.88	9
Academic teacher	5.74	0.88	10
Coach	5.78	0.75	11
Principal	5.81	0.67	12
Others	5.81	0.90	13
Clergyman	5.94	0.45	14
Other vocational teacher(s)	5.98	0.24	15

[a]Mean rank was calculated as an average of the ranks assigned to each item. Any item not ranked among the top five was assigned a value of six.

(50.9%) said they were considering a career in or would pursue a career in an agriculturally related field.

Among other reasons for enrollment, there were much fewer who indicated intentions to pursue or interest in an agricultural career. Of 17 students (5.1%) who said they were enrolled because no other electives were available, 88.2% of them were either undecided on a

career or definitely not interested in an agricultural career. In addition, of the 82 students who enrolled because the course was recommended to them, only 15 (18.3%) were at least considering a career in agriculture.

FFA Membership by Career Objective

Upon examining a student's FFA membership and career objective, it was found that the variables were not independent ($x^2_9=17.45$, $p<.05$). There were 14 students (3.8%) in the study that indicated they were never an FFA member. Within this group, nine students (64.3%) said they were undecided on a career. Five of these students (35.7%) said they definitely would not pursue an agricultural career.

Data showed that within the group of 54 students (14.8%) saying they would pursue an agricultural related career, the longer they had been a member of the FFA, the more apt they were to have made that decision. Of the 54 students, 45 (83.3%) had been a member for three years, eight students (14.8%) had been a member two years, and one student (1.9%) had been a member for one year. There were no students in this group that had not been an FFA member.

Career Objective by Occupational Discussion With Ag Teacher

The two variables of career objective and whether or not the students discussed their occupational choice with their vocational agriculture teacher were examined. The calculated chi-square was significant ($x^2_3=42.33$, $p<.05$).

There were 54 students (14.9%) who said they would pursue a career in agriculture. Over three-fourths (77.8%) of these students had discussed their occupational choice with their vocational agriculture teacher. Similar results were found with the students saying they would consider a career in agriculture. Of these 85 students (23.4%), more than two-thirds (70.6%) had discussed their occupational choice with their vocational agriculture teacher. The majority of students either pursuing or considering an agricultural career had discussed their plans with their vocational agriculture teacher.

A total of 161 students (44.4%) said they were undecided on a career. There were 59.6% of these who had not discussed occupational plans with their vocational agriculture teacher. Sixty-three students (17.4%) indicated they would not pursue a career in agriculture. Of these, 65.1% had not discussed their occupational choice with their vocational agriculture teacher. Of the students undecided on a career or not pursuing an agricultural career, the majority of them had not discussed their occupational choice with their vocational agriculture teacher.

Career Objective by Occupational Discussion/Help from Ag Teacher

An examination was conducted between the career objective of the students and the degree of help from their vocational agriculture teacher upon discussing their occupational plans. It was concluded that the variables were independent ($x^2_6=10.39$, $p>.05$).

Conclusions

Based on the findings of this study, the following conclusions were drawn by the researchers.

1. Seventy percent of the vocational agriculture students in the study indicated that they had made an occupational choice by the eleventh grade.
2. The mother and father were rated as the two most influential people toward the vocational agriculture students' educational and occupational plans.
3. Vocational agriculture students whose parents have attained higher educational levels generally have higher educational aspirations.
4. A majority of the vocational agriculture students who discussed occupational plans with vocational agriculture teacher, guidance counselors, and other teachers said the discussions were helpful.
5. Vocational agriculture was noted as the most influential course toward the vocational agriculture students' educational and occupational plans.
6. A majority of the students indicated they enrolled in vocational agriculture because they had an interest in an agricultural career.

Recommendations

The following recommendations are based on the findings and conclusions of this study.

Recommendations for Practice

1. Career counseling should be given increased emphasis by vocational agriculture teachers and guidance counselors. A large portion of students indicated that they had not discussed their educational and/or occupational plans with counselors or teachers. Those who had discussed these items with counselors and/or teachers said the discussions were helpful.
2. Career counseling activities should begin early in the student's secondary schooling. Seventy percent of the respondents indicated their occupational decision had been made by the eleventh grade. Therefore, counseling, especially in the area of career awareness, should begin by the junior high school level.

Recommendations for Further Research

1. Future research in this area should include the agricultural experiences and background of the parents (especially fathers) as a variable of investigation.
2. Further research should be conducted to determine if students' educational decisions are being made at an earlier age as was found with occupational decisions in this study.

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Research Paper Critique

OCCUPATIONAL ASPIRATIONS OF THIRD YEAR VOCATIONAL AGRICULTURE STUDENTS

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The study is well defined in its objectives. The input was reviewed by a panel as well as pretested, which was good. The research in general was centered around the students of the 11th grade, which will be students of about 15-16 years of age. A natural expectation here is that your student that is enrolled in agriculture is interested in agriculture to pursue a career. I feel the students are interested or most of them would not be there. One of the things that you have to be concerned with is the students that are not interested are taking agriculture. Is there some correlation to the parents level of education as an effect upon the career of the students. I think that is an area that probably needs some further study. Also your FFA membership and it's impact on the students career. We have known for years that, as a student goes through 3 or 4 years of FFA he has a higher tendency to go back into some career in agriculture. The effect of your agriculture teacher and your counselor is a tremendous influence on the students choice of career. The agriculture teachers should probably have the greatest influence on a student that is going into an agriculture career. This points out one thing, that the agriculture teacher on a one to one basis talks to these students a lot more than counselors. As a result of thisthere should be greater communication between the

agriculture teacher and the high school counselor. The occupational choices that a student makes, was pointed out in the study, to be made around the eleventh grade. I was wondering if there was any correlation between the research being done with the eleventh graders and the place or point at which it is taking place. In other words, it is an interrelationship between them. And naturally what is to be expected of an agricultural career again, it is the substance that has the most influence on the students which being agriculture, math and science. And this is the way your emphasis is going.

I would like to see if there are any reports on the relationship between the total number of students enrolled in the school as compared to some of your other career choices. Your influence on agriculture careers by your agriculture teachers. I see a relationship here between our profession in pre-service training and teacher education in vocational agriculture, because agriculture teachers can have impact on our programs. You know that there is a direct relationship here, but something has gone wrong because we are always hollering that shortages of agriculture teachers exist in every state over the years. We have some 3000 students in this one study going into the program and 57 percent of them are going on to some type of post-secondary training higher education, 27 percent I believe to college. We know there is a choice, between what the agriculture teachers are telling the students and the students getting into vocational agriculture as a career. In the paper's conclusions, I am wondrous of any resulting differences with two other groups: your school administrators and your counselors. I see that my is time is up. Let me conclude by stating, I believe my observations are on target.

ACADEMIC SUCCESS OF FORMER VOCATIONAL AGRICULTURE STUDENTS IN POSTSECONDARY, ASSOCIATE DEGREE, AGRICULTURAL PROGRAMS

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Academic Success of Former Vocational Agriculture Students in Postsecondary, Associate Degree, Agricultural Programs

INTRODUCTION

The issues of student achievement and retention have recently received much attention from those within as well as those outside the education profession. The aftermath of "The Nation at Risk" (1980) report, from the National Commission on Excellence in Education, has prompted most school systems to embark upon some action to improve student skills in the areas of math, science, English and foreign languages. The implication is that students with more study in the above areas will be prepared better to succeed academically in postsecondary level programs.

Most of the academic improvement in secondary students is measured in terms of scores received on college entrance achievement tests. Current trends in secondary education stress that students should take more of the so called "academic courses" to be better prepared to succeed in postsecondary programs.

The increased emphasis on the academic curriculum at the secondary level is somewhat at the expense of the vocational curriculum. Several schools have witnessed their vocational enrollments drop as academic graduation requirements and state certification programs are added. However, there is much concern over the issue. The National Commission on Secondary Vocational Education recognized the value of the secondary vocational education enterprise to all students when it recommended that a balance of academic and vocational experiences be offered, at the secondary level, to "prepare students for life in a changing world", The Unfinished Agenda: The Role of Vocational Education in the High School. Secondary preparation does have an influence upon the programs a student may enter after high school. Traditionally, many vocational agriculture students who desired further education have opted to attend 4-year degree programs; however, in recent years these students have been viewing the 2-year associate degree programs as a viable alternative.

Difficulty has been encountered by many 2-year institutions in recruiting quality students for agriculture as well as other degree programs. Knowing how to advise students for maximum academic success without infringing upon career opportunities is difficult. However, many faculty and institutional officers at postsecondary institutions advocate that prospective associate degree seeking students should take the college entrance track of courses to fortify themselves for academic success in the 2-year program (Warns, 1983). Knoblauch reported in his research that academic success was difficult to predict, but such success was somewhat related to vocabulary scores, comprehension scores and high school grade point average. However, review of the backgrounds of postsecondary students indicate that many are

being accepted without such preparation. Further, many of these students succeed quite well in the postsecondary programs of their choice.

In view of the decreasing supply of students for 2-year, as well as 4-year programs, Scully (1980), noted renewed emphasis upon recruitment. For agriculture programs, much of the recruitment initiative is being directed toward the non-vocational student in hopes of recruiting more capable students who will provide leadership for agriculture in the 21st century. Didactic declarations are often encountered which suggests that capable secondary students are encouraged not to in enroll in vocational courses, agriculture included. Many college of agriculture faculty maintain that students studying agricultural education are not as successful academically as other agricultural students. Yet, Wardlow and Miller (1984), report that there are no significant differences in the academic achievement of former vocational agriculture students and other students within the university.

In view of the broad concern about the academic achievement of students who graduate from public schools, the academic ability of those who graduate from vocational agriculture programs may also be in question. Further, vocational agriculture programs are found in comprehensive high schools as well as area vocational schools adding another dimension to the quality of academic preparation at the secondary level. Since many vocational agriculture students attend 2-year associate level. Since many vocational agriculture students attend 2-year associate degree programs following high school, more finite knowledge of how these student succeed academically would be of value to secondary schools as well as postsecondary institutions in making rational decisions about program improvement, recruitment and student retention.

PURPOSE OF THE STUDY

The purpose of this study was to describe the backgrounds of 2-year associate degree program graduates in agriculture and ascertain any relationships which may be influencing their academic success. The objectives of the study centered around measures of academic success for: 1) students with vocational agriculture backgrounds from comprehensive high schools; 2) students with vocational backgrounds from area vocational schools; 3) students from non-vocational agriculture backgrounds.

Specific objectives were as follows:

1. Describe the change in grade point average from the first to the final quarter for students of interest.

2. Describe the relationship of the number of math courses taken in high school to the final postsecondary grade point average.

3. Describe the relationship of the number of English courses taken in high school to the final postsecondary grade point average for students of interest.

4. Describe the relationship of the number of foreign language courses taken in high school to the final postsecondary grade point average for the students of interest.

5. Describe the relationship of the number of science courses taken in high school to the final postsecondary grade point average for students of interest.

6. Describe the relationship of ACT scores to the final grade point average for students of interest.

7. Describe the relationship of the final high school grade point average to the final postsecondary grade point average for the students of interest.

PROCEDURES

Population and the Sample

This study was conducted as a post hoc, longitudinal, descriptive investigation on graduates of the associate degree program at the Agricultural Technical Institute - The Ohio State University. The population for the study was the students matriculating from the Agricultural Technical Institute during the period 1978 to 1983. A 30 percent random sample was drawn resulting in 24 students from area vocational schools with vocational agriculture experiences, 63 students from comprehensive high school vocational agriculture experiences and 261 students from non-vocational agriculture experiences. Data of interest for each subject were collected from the records office of the Agricultural Technical Institute.

The instrument used for data collection was researcher prepared. Student files were reviewed to ascertain the specific types of information contained which related to academic success. The instrument was then designed to collect the predetermined data. The instrument was piloted by using secretarial personnel to collect data from predetermined student files. The data collected by the researcher from the same files. Results were found to be in complete agreement.

Limitations

Some files contained only partial data which was being collected for the study. High school records were not available for many students who transferred to the Agricultural Technical Institute. The missing data was most prominent among students in the non-vocational agriculture subgroup. The study is limited by the accuracy of the data placed in student files from high school records and by records kept by the Student Personnel Office of the Agricultural Technical Institute.

Data Analysis

Because the study was descriptive in nature, it sought only to describe rather than explain the relationship between the variables. Descriptive statistics were used to address objectives of the study. Means, frequency counts and percentages were computed for the variables of interest.

Non response error was not considered a problem since data were obtained from all subjects in the sample, except as noted above in the limitations. Since data were collected from students matriculating from the Agricultural Technical Institute during the period from 1978 to 1983, the generalizability of results are limited on that basis.

RESULTS

Description of the Sample

During the 5 years period covered by this study, approximately 25 percent of the graduates of the Agricultural Technical Institute were former students of a vocational agriculture program. Of these, 18.1 percent were graduates of a comprehensive high school vocational agriculture program and 6.9 percent were graduates of an area vocational school agricultural program. Of the 348 students in the sample, 107 were females and 241 were males.

Change in Grade Point Average

Analysis of final grade point averages revealed that students who were graduates of a comprehensive high school agricultural program has higher grade point averages at the end of their first postsecondary academic quarter and at the end of their final postsecondary quarter than students from non-vocational agriculture programs and students from vocational agriculture programs conducted in area vocational schools. Students from vocational agriculture programs conducted in area vocational schools ranked second and students from non-vocational agriculture backgrounds ranked third. (Table 1)

Table 1

First and Final Quarter Grade Point Average Comparisons for Students Enrolled in Associate Degree Agriculture Programs

	Comprehensive High School Vo. Ag. Students	Area Vocational School Vo. Ag. Students	Non-Vocational Agriculture Students
First Quarter Grade Point Average	3.01	2.95	2.87
Final Quarter Grade Point Average	2.90	2.89	2.84

High School Math Courses

Analysis of high school transcripts revealed that students with non-vocational agriculture backgrounds took a mean of 2.88 courses in math. Students with vocational agriculture backgrounds from comprehensive high schools took a mean of 2.63 math courses, while students from vocational agriculture programs at area vocational schools took a mean of 2.04 courses in math. Further analysis indicated that of the comprehensive high school vocational agriculture students, 1.5% of them took 5 math courses; 15.7% took 4 math courses; 32.,8% took 3 courses; 48.5% took 2 courses and 1.5% took 1 math course in high school. Of these students from area vocational schools, only 4% took 3 math courses; 88% took 2 math courses; and 8% took only 1 math course. Records indicated that the students from non-vocational agriculture high school programs, 2% took 5 math courses; 27.5% took 4 math courses; 36.2% took 3 courses; 31.4% took 2 courses; and 3.9% took only 1 math course. (Refer to Table 2)

Table 2

High School Math Courses Compared to Final Associate Degree Grade Point Average

	Comprehensive High School Vo. Ag. Students	Area Vocational School Vo. Ag. Students	Non-Vocational Agriculture Students
Mean Number of High School Math Courses Taken	2.63	2.04	2.88
Final Quarter Grade Point Average	2.90	2.89	2.84

High School English Courses

High school preparation in communications courses was reviewed. The study revealed that students with non-vocational agriculture backgrounds took an average of 3.55 courses in English, which vocational agriculture students from comprehensive high schools took an average of 3.48 English courses and vocational agriculture students from area vocational schools took an average of 3.08 English courses.

When frequencies were examined it was found that the non-vocational agriculture students, 1 student took 5 English courses; 108 students took 4 English courses; 67 students took 3 English courses; 6 students reported taking 2 English courses; and 1 student only took 1 English course. Students from comprehensive high school vocational agriculture programs took the following number of English courses: 1 student took 5 courses; 31 students took 4 courses; 27 students too 3 courses; and 3 students took 2 English courses. Students who attended vocational agriculture programs at area vocational schools took the following: 5 students took 4 English courses; 17 students took 3 courses; and 3 students only took 2 English courses.(Refer to Table 3)

Table 3

High School English Courses Compared to Final Associate Degree Grade Point Average

	Comprehensive High School Vo.Ag. Students	Area Vocational School Vo. Ag. Students	Non-Vocational Agriculture Students
Mean Number of High School English Courses Taken	3.48	3.08	3.55
Final Quarter Grade Point Average	2.90	2.89	2.84

High School Foreign Language Courses

Of the vocational agriculture students who attended area vocational schools, 24% were found to take at lease 1 year of a foreign language; while 20% were found to take a language for 2 years. 76% were found not have taken any foreign language. Among the students who attended a comprehensive high school vocational agriculture program, it was found that 37.5% had at least 1 year of a language; 17.2% had at least 2 years of language; and 62.5% of the students were found not to have taken any foreign language. Of the students with non-vocational agriculture

backgrounds, 74% were found to have taken at lease 1 foreign language course. Students who took foreign language were as follows: .6% took 5 language courses; 1% took 4 courses; 3.3% took 3 courses; 46.7% took 2 courses; and 22.5% took only one language course. (Refer to Table 4)

Table 4

High School Foreign Language Courses Compared to Final Associate Degree Grade Point Average

	Comprehensive High School Vo.Ag. Students	Area Vocational School Vo. Ag. Students	Non-Vocational Agriculture Students
Mean Number of High School Foreign Language Courses Taken	1.46	1.71	1.79
Final Quarter Grade Point Average	2.90	2.89	2.84
Percent of Students Not Taking Foreign Language in High School	62.5	76.0	26.0

High School Science Courses

Students with vocational agriculture backgrounds from comprehensive high schools were found to take an average of 2.42 science courses while vocational agriculture students from area vocational schools were observed to take an average of 1.68 science courses. Students from non-vocational agriculture backgrounds took an average of 2.66 courses in science.

Frequencies counts showed that 17 area vocational school students took 2 science courses and 8 students only took 1 year of science. Vocational agriculture students from comprehensive high schools took science courses as follows: 9 students took 4 science courses; 17 students to 3 science courses; 27 students took 2 science courses; and 9 students took only 1 science course. Non-vocational agriculture students took the following preparatory courses in science: 2 students took 5 courses; 34 students took 4 courses; 59 students took 3 courses; 59 students took 2 courses; and 24 students took only 1 science course. (Refer to Table 5)

Table 5

High School Science Courses Compared to Final Associate Degree Grade Point Average

	Comprehensive High School Vo. Ag. Students	Area Vocational School Vo. Ag. Students	Non-vocational Agriculture Students
Mean Number of High School Science Courses Taken	2.42	1.68	2.66
Final Quarter Grade Point Average	2.90	2.89	2.84

ACT Test Scores

The predominate achievement test score used by Agricultural Technical Institute was the ACT. However, provisions were make to admit students who had not taken a college entrance test via using the testing program of the Institute. Vocational agriculture students who attended area vocational schools had a mean score of 17.79, while vocational agriculture students who attended comprehensive high schools had a mean ACT score of 18.22. Students from non-vocational agriculture programs had a mean ACT score of 18.75. The percentile rankings of those taking the ACT battery are given in Table 6.

Table 6

Frequencies and Percentages of Scores Achieved on the ACT Test Battery

ACT SCORES	Area Vocational School Vo Ag. Students		Comprehensive High School Vo. Ag. Students		Non-Vo. Ag. Students	
	f	%	f	%	f	%
25	2	10.5	7	15.5	19	13.4
20	6	31.6	11	24.5	45	31.7
15	5	26.3	16	35.6	49	34.5
10	6	31.6	9	20.0	25	17.6
5	0	0	2	4.4	4	2.8

High School and Postsecondary Grade Point Averages

Table 7 shows that postsecondary grade point averages declined from the first to the final quarter at the post-secondary institution for all the groups of students under study. Frequencies shown in Table 7 illustrate that students from area vocational schools experienced a slight decline in grade point average at the postsecondary level as compared to the final grade point average they had achieved at the high school level. The unequal "n's" shown in Table 8 are a result of missing data in student permanent records.

Table 7

Final and First Quarter GPA Means

	Comprehensive High School Vo. Ag. Students		Area Vocational School Vo. Ag. Students		Non-Vo.Ag. Students	
	H.S.	P.S.	H.S.	P.S.	H.S.	P.S
Final Mean GPA	3.09	2.89	2.91	2.90	2.88	2.84
1st Quarter Post. Sec. GPA	.....	2.95	.....	3.01	.....	2.87

Table 8

High School Grade Point Average Compared to Postsecondary Grade Point Average by Frequencies and Means

Grade Point Average	Area Vocational School Vo. Ag. Students f H.S.	f P.S.	Comprehensive High School Vo. Ag. Students f H.S.	f P.S.	Non-Vo. Ag. Students f H.S.	f P.S.
4.0	1	0	0	0	1	0
3.5	2	3	8	7	23	32
3.0	10	6	16	18	50	79
2.5	6	11	19	26	53	96
2.0	2	4	10	12	23	46
1.5	0	0	2	0	14	0
	n=21	n=24	n=55	n=63	n=164	n=253

CONCLUSIONS AND RECOMMENDATIONS

Based upon the findings of this study and for the population being investigated the following conclusions may be drawn:

1. That students from non-vocational agriculture backgrounds do enter postsecondary, associate degree, programs with more secondary preparation in math, English, science and foreign language than student from vocational agriculture backgrounds, whether located in a comprehensive high school or in an area vocational school.

2. Final associate degree grade point averages for all students of study has a range of only .06; however, students from vocational agriculture programs at the comprehensive high school as well as the area vocational school have slightly higher GPA's than students from non-vocational agriculture programs. This finding could have some bearing on the value of taking vocational agriculture at the secondary level in preparation for entering an associate degree program in technical agriculture. Further study should be made of this finding.

3. The data showed that final associate degree grade point averages for all of the groups of students under study declined from the first quarter to the final quarter of program completion. Further study of this relationship should be made to determine methods which may be used to assist students in improving their academic performance as they progress through their chosen technical program.

4. Based upon the findings of this study, the didactic recommendations that students should take the college entrance track of courses, i.e. math, science and communications, while in high school, is not justified. This study revealed that vocational agriculture students do slightly better on final grade point average than their colleagues who have had more preparatory courses in math, science and communications.

5. The data in this study indicates that vocational agriculture students can succeed academically as well as students with non-vocational agriculture backgrounds. Being aware of this finding, postsecondary officials may give increased emphasis to the value to having vocational agriculture as preparatory for entering technical agriculture study at the associate degree level.

6. The findings of this study are in agreement with the findings of Wardlow and Miller (1984), which indicate there are no differences in former vocational agriculture students and other student groups as related to academic success.

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Research Paper Critique

ACADEMIC SUCCESS OF FORMER VOCATIONAL AGRICULTURE STUDENTS IN POSTSECONDARY, ASSOCIATE DEGREE, AGRICULTURAL PROGRAMS

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Discussants are confronted with a unique challenge in attempting to review manuscripts and to evaluate the strengths and weaknesses of a research study without being able to interact with the authors. Our role is to provide constructive criticism of the research presented. I intend to carry out this role within the bounds of my belief that all researchers set out to conduct quality research and to write quality research reports.

Strengths

First, I would like to commend the author for his paper being one of the 15 papers that were accepted for this conference out of 26 submissions. I also commend the author for conducting research in an area that is very timely and needs to be addressed. The topic is certainly appropriate for this research meeting and is of importance to a regional audience. The paper was well organized

and generally well written. The introduction presented a clear statement of the problem and, along with an adequate review of the literature, documented the need for the study. The purpose and objectives were clearly stated. The procedures used were stated clearly and the tables used were easy to read. The author called attention to the limitations of the study that resulted from the inability to secure complete student records. The conclusions and recommendations were generally well written and substantiated. The results were interesting.

Suggestions for Improvement

Further explanation of the sampling procedure is needed. The author stated that a 30% random sample was drawn from the population of students at the Agricultural Technical Institute. This procedure resulted in 261 students from non-vocational agriculture backgrounds, 63 students from comprehensive high school vocational agriculture programs, and 24 students from area vocational schools with vocational agriculture programs. It appears that the study could have been strengthened considerably by using a sampling strategy that would have utilized more students from the area vocational schools. This needs to be addressed in the paper.

The results section of the paper was difficult to read. Numerous numbers and percentages were used to present data that

should have been presented in table form, if at all. Much of this data should have been described using descriptive statistics other than count data.

Even though the author indicated in the limitations section that some data was missing, none of the tables indicated the number on which the means were based. This made it very difficulty to evaluate the data presented.

Most of the paper revolved around the students' grade point averages at the Agricultural Technical Institute. The paper did not provide any information as to whether the students from the three groups all took the same courses or whether students from any group matriculated in curricula that were of differing difficulty.

The author used the number of high school math, science and English courses as variables. However, the paper did not explain whether these courses were all at the same level or whether they were at varying levels of difficulty. Even though it may have made an interesting comparison, the author did not explain why the number of foreign language courses was used in the comparison of grade point averages in an agricultural school.

The author did not attempt to make comparisons among the groups by sex or other socioeconomic variables that may have explained the differences in grade point averages. These

variables should have been considered since past research has shown that they are related to grade point averages and other measures of academic success.

Conclusion number four cannot be justified. The data did indicate that the grade point averages did not vary much even though the non-vocational agriculture students had taken more (from one-half to one) courses in science, math, English and foreign language courses than the vocational agriculture students. However, the rationale for taking college entrance courses is not based solely on how well a student will do at the Agricultural Technical Institute. The author can not make the broad claim that the college entrance track is not justified based on these data from Agricultural Technical Institute students.

While the researcher did a good job of developing conclusions and recommendations, it appears that the author may have accidentally stepped outside of the bounds of his data.

One final note - this study is like most others in that my reading of the paper raised more questions than it answered. No one knows more about what went on in this study than the researcher. I may have raised questions for which there may be logical answers or explanations. I hope that my comments will be taken as they are intended - constructively.

IMAGE OF AGRICULTURAL EDUCATION TEACHER TRAINING PROGRAMS IN COLLEGES OF EDUCATION AND AGRICULTURE AT THREE MAJOR UNIVERSITIES

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Image of Agricultural Education Teacher Training Programs in Colleges of Education and Agriculture at Three Major Universities

The image that others have of agricultural teacher education is of tremendous importance in the University environment. Image affects collegial relationships with peers, students, promotion and tenure, and funding. There are points in the budgeting process where facts and rationalism may be overweighed by image. If image is negative, then funding decisions may be likewise. The result is often stress-producing upon faculty when decisions are not supportive, even in light of the facts, and occur time-after-time. This study was undertaken to focus upon this major concern of agricultural education; that is, the image held by peers within their university.

This research represents a collaborative effort of faculty in three universities to address an important concern. The research was carried out at The Ohio State University (OSU), Virginia Polytechnic Institute and State University (VPI), and Mississippi State University (MSU). No external funding was used. Further, the effort may be described as "low budget" research in that the cost for the study was borne by the budgets of the respective agricultural teacher education programs.

The Importance of Image

Image, as a construct, has evolved out of contemporary literature in business and marketing. Brand names have been concerned about their image, as are car companies, grocery store chains, etc. The image of science and scientists has been studied (Smith and Krajkovich, 1979) and higher education institutions vie for recognition in image studies which are often conducted in speciality areas (Lawrence and Solomon, 1981). Measurement of image has been investigated (Menezes and Elbert, 1979; Fisk, 1961; Kunkel and Berry, 1968) to establish the validity and reliability of given scales. A Likert-type scale has been shown to adequately assess image (Menezes and Elbert, 1979).

Agricultural teacher education is typically housed in departments of agricultural education. As the name implies, these departments operate in the realms of technical agriculture and education. A problematic situation arises when agriculturalists view the profession as behavioral in nature and not "fitting-in" with "hard science" colleagues, and when education peers view agricultural education programs as mavericks because of the technical base.

If the prestige of agricultural education is to be elevated, the current status of the image must first be determined. The focus of this study was to describe the status of the image at three land-grant institutions. In two cases, agricultural education was in colleges of agriculture and in the college of education for the third.

Purpose

The purpose of this study was to determine the image of agricultural education held by faculties in colleges of education and agriculture at MSU, OSU, and VPI.

Research Questions

The research questions were:

1. What is the image of the agricultural education programs at each institution?

2. Is there a significant difference between the image held by faculties in the college of education and the college of agriculture across all institutions, and within each institution?

3. Is there a significant difference in the image held by faculties among institutions, and between colleges among institutions?

Procedures

Three faculty members, one representing each university, agreed on the approach and the responsibilities for each person. The study was a descriptive study employing survey methodology.

The instrument used to collect data was comprised of a series of statements about agricultural education with specific sections on faculty, students, research, mission, teaching and service. Respondents were asked the extent to which they agreed with each of 57 statements by using a 4 point, Likert-type scale, with 1 representing strongly disagree (a negative image) to 4 representing a strongly agree (a positive image). The instrument was pilot tested at Cornell University, refined and evaluated for content validity and reliability. The Cronbach alpha reliability coefficient was .97.

Selection of subjects was through a stratified random sampling procedure from six independent, finite populations. Namely, the strata were faculties in colleges of education and agriculture at the three institutions who were assigned instructional responsibility for 50 percent or more of their time. The randomization procedure controlled the sampling bias threat. Selection and frame errors were controlled by the researchers using up-to-date faculty lists and carefully purging the lists of duplications. To control any non-response error, a ten percent random sample of non-respondents was contacted. Data were gathered on image, and statistical analysis (Chi Square) conducted between respondents and non-respondents which revealed no significant difference between the two groups. The results were, therefore, generalizable to the populations. The sample size was determined for a five percent margin of error with a 90 percent confidence level. A mailed questionnaire was used with three follow-ups. Appropriate statistical analyses procedures were used for each research question. Where hypotheses were tested, an *a priori* alpha level of .10 was utilized.

Findings

These findings describe the image of agricultural education at these institutions within the parameters of the margin of error and risk prescribed by the sampling procedure. Each researcher followed the same procedures.

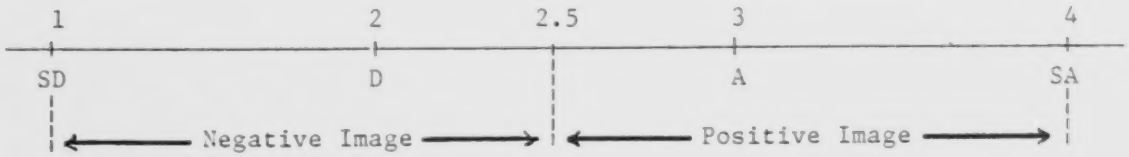
Table 1 shows information on respondents by college and by institution. Readers should note that the non-response error was controlled. However, among those responding, disparity existed among institutions and colleges. Unusable responses were deemed such when a respondent indicated N/A, "Inadequate opportunity to Observe." Coupling the response rate with this finding, one might conclude that others really do not know enough about agricultural education and awareness programs within these colleges would be justified. Data produced on the image questionnaire were then analyzed to address the research questions.

Table 1
Respondent Information

College	Institution		
	OSU	VPI	MSU
Agriculture			
N	190	90	23
n (sample)	91	59	22
Accepting sample	58	51	20
% returned	64	86	91
Data sample*	52[a]	36[b]	18[c]
Education			
N	139	91	82
n (sample)	77	60	53
Accepting sample	38	57	46
% returned	49	95	87
Data sample**	31[d]	39[e]	39[f]

* Of those returned, 89%[a], 71%[b], and 90%[c] were usable from agriculture.
** Of those returned, 82%[d], 68%[e], and 85%[f], were usable from education.

To address Question 1, the descriptive statistics in Table 2 noted the mean rating across the 57 statements by institution. The instrument was scaled with strongly disagree = 1, disagree = 2, agree = 3 and strongly agree = 4. With scale values reversed for negatively worded items, summated mean ratings were interpreted as:



Applying these standards, the image at MSU (2.74), OSU (2.69) and VPI (2.61) were all on the positive side of the continuum.

Questions two and three proposed to determine if significant differences existed between colleges across institutions and between institutions by college. Analysis of variance was used to test significance for which the assumptions (Downie & Heath, 1970) were met by random sampling from independent groups and Bartlett's Box F tests affirming homogeneity of variance.

Table 2
Analysis of Variance of Image by Institution

	Institution		
	OSU	VPI	MSU
f	83	75	57
Mean	2.69	2.61*	2.74
S.D.	.23	.27	.35

Source	df	SS	MS	F
Between Groups	2	.51	.26	3.182
Within Groups	212	16.99	.08	
Total	214	17.50		

*p < .10, Scheffé

The image of agricultural education held by education faculty across institutions was significantly higher than that held by agriculture faculty (Table 3). At MSU, agriculture faculty ($\bar{x}$ = 2.57) was significantly lower than education faculty ($\bar{x}$ = 2.81); at OSU, agriculture ($\bar{x}$ = 2.64) was not significantly different from education ($\bar{x}$ = 2.77); and at VPI agriculture ($\bar{x}$ = 2.50) was significantly lower than education ($\bar{x}$ = 2.72) at a .10 alpha level.

Table 3
Analysis of Variance of Image by College Across Institutions

	College	
	Agriculture	Education
f	106	109
Mean	2.58	2.77
S.D.	.25	.28

Source	df	SS	MS	F
Between Groups	1	1.94	1.94	26.6*
Within Groups	213	15.57	.07	
Total	214	17.51		

*p < .10, Scheffé

The analysis of image held in colleges of agriculture (Table 4) showed OSU to be significantly more positive than VPI, but no differences greater than could have occurred by chance between OSU and MSU or VPI and MSU. The image held by faculty in the colleges of education (Table 5) were not significantly different.

Table 4
Analysis of Variance of Image in Colleges of Agriculture by Institution

	Institution		
	OSU	VPI	MSU
f	52	36	18
Mean	2.64	2.50*	2.57
S.D.	.24	.28	.21

Source	df	SS	MS	F
Between Groups	2	.40	.20	3.231
Within Groups	103	6.37	.06	
Total	105	6.77		

*p < .10, Scheffé

Table 5
Analysis of Variance of Image in Colleges of Education by Institution

	Institution		
	OSU	VPI	MSU
f	31	39	39
Mean	2.77	2.72	2.81
S.D.	.20	.23	.38

Source	df	SS	MS	F
Between Groups	2	.18	.09	1.09
Within Groups	106	8.62	.08	
Total	108	8.79		

Discussion

The image of agricultural education was moderately positive at all three institutions. Conceptually, even though significance was identified among the institutions, the relative position of the mean ratings illuminates the need for each agricultural education program to be concerned about their image.

The findings illustrated that image within colleges of agriculture need more improvement than in education. Given that agricultural education is located in the college of education at VPI and in the college of agriculture at MSU and OSU, the overall impact of the finding speaks to the congruence of mission between agricultural education and education in general. Agricultural faculty may operate from a frame of reference married closely to technical knowledge and experimental research methods which clouds their image of agricultural education where such methodology does not predominate and the technical base is not viewed as being as definable as, for example, agronomy.

Within colleges of agriculture, VPI had a significantly less positive image than OSU which might be partially explained by the college home. However, such an explanation is confounded when comparisons between VPI and MSU are examined. One might have hypothesized that those departments administered within colleges of agriculture would have a significantly more positive image in that college. Such a hypothesis would not have been consistently supported.

No significant differences were observed between faculties in colleges of education. Once again, logic would have posited a directional hypothesis with the department administered in a college of education (VPI) having a significantly higher image than those administered in agriculture. Such a hypothesis would not have been supported. While the significance test indicated that the differences could have occurred by chance, the trend produced in the mean data was in the opposite direction. The mean score for the agricultural education program administered in a college of education (VPI) was less than those administered in colleges of agriculture (OSU and MSU).

Recommendations

1. Other agricultural education programs should study their image so results can be compiled to approximate parameters. Given that these three institutions studied are heavily committed to graduate programs and the research function, institutions with other priority profiles might produce variability in image. More comprehensive data would permit examination of other antecedent and moderating variables to be examined to seek better explanation of image in the total profession.

2. Theories from business and marketing should be examined to propose appropriate strategies for improving the image of agricultural education.

3. The data should be further analyzed for each domain within the instrument of image of faculty, students, research, teaching, and service to test for differences and help further describe the image of the programs.

4. Data should be further analyzed to ascertain if personological characteristics of the respondents can help explain the image held of agricultural education.

5. The results should be communicated to the profession. If these institutions are representative, the profession should be concerned and begin initiatives to remediate the situation.

6. Studies with other groups, such as university-level administrators, should be undertaken.

7. Longitudinal studies should be undertaken to document the trends in the image of agricultural education as various policy interventions may occur.

8. Comparative studies with other departments in education and/or agriculture should be undertaken to examine the relative position of agriculture education among those sister departments or programs.

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Research Paper Critique

IMAGE OF AGRICULTURAL EDUCATION TEACHER TRAINING PROGRAMS IN COLLEGES OF EDUCATION AND AGRICULTURE AT THREE MAJOR UNIVERSITIES

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My comments on this paper will be brief. Due to time restraints, the researchers were not able to give me a final paper. They did give me a five page summary this week from which to base my reactions upon. The summary did a good job of highlighting the research project but did not give me many specifics. Therefore, the comments and questions that I will bring up in the next couple of minutes may have already been answered in the presentation, some of them were, or explained further in the final report.

The title of the research project describes well the content of the study. I believe this is a timely study, and one that is important to everyone that is involved in agricultural education. The question of what is the image of agricultural education is a critical concern, especially when it comes to funding for teacher education programs. Image and how it can affect the amount of funding an institution receives can be dramatically illustrated with the space shuttle disaster and the ensuing investigation. NASA's image as an organization which places the astronauts safety above all else has been tarnished

and because of that some are calling for reduction in space shuttle funding and in fact a few went so far as to question the need for manned space flight.

As resources for teacher education programs diminish and student enrollment declines, competition will increase between departments and colleges and this thing called image will become even more important. The authors are to be commended for using the joint study method which pools resources and personnel from several universities to conduct research. This method is an excellent approach for conducting research in agricultural education. Because the authors are encouraging this approach, I would hope to see included in their final report any problems and concerns they encountered conducting this research project using this joint study method.

The review of literature cited in the summary establishes credibility for the study and leads the reader to the purpose and the objectives of the study. The sampling method described was appropriate. I would like to commend the researchers on their follow-up of non-responders.

I do have a question about including only those faculty with 50 percent or more of their time assigned to instructional responsibility. Does not this exclude those faculty members who are administrators, researchers or extension personnel who maybe do not teach or teach as much, but whose individual opinion of the image of agricultural education is a part of a particular institutions overall image of agricultural education. This may be a problem particularly when surveying a College of Agriculture where many of the faculty do not have a 50 percent or more of their assignment to teaching but are more heavily involved in research and extension.

Statistical analysis procedures were not included in the summary I received, therefore, I will not comment on them. It would have been nice to have had sample size, response rate, and group means. This was not included in my summary but you can see they did take care of it in their final report. The results provided in the summary were brief. They indicated, however, that the image of agricultural education was just slightly positive. I interpreted the first research question a little bit differently: What is the image of agricultural education? They answered that by saying, that it was slightly positive. I perceived it to also be important to find out what made up that slightly positive image. Not only is it important to know what the image is, positive or negative, but also what are the ingredients that went into that image?. What factors are these faculties taking into consideration? How can agricultural education use this information to change our image into a more positive one? The fifty-seven statements which the faculty evaluated were not included in my summary.

The recommendations presented are logical and should lead to some very interesting future studies. An additional recommendation would be to conduct research as to why agriculture's image is not more positive. The research gives us a feeling for where we are and it may be of interest to find out how we got here. By understanding this maybe we can begin to elevate agricultural education's image.

FOURTH GENERAL SESSION

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ADOPTION OF COMPUTER TECHNOLOGY

BY AGRICULTURAL EDUCATORS

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Microcomputers are acquiring increasingly prominent roles in various phases of production agriculture, agribusiness, and vocational agriculture. However, many questions exist and must be answered about which professionals in agricultural education are using microcomputer technology and for what purposes. The diffusion and adoption literature (Lionberger & Gwin, 1982) indicates that innovators and early adopters of this technology possess specific characteristics. Individuals who later adopt the technology possess a different set of characteristics and those who will never adopt microcomputer technology can be expected to have traits far different from those individuals who use the technology on a regular basis.

Lionberger and Gwin (1982, p. 64) also indicated that many factors other than an individual's personal traits govern the rate at which an innovation is adopted. Two very potent factors they discussed relate to the situation the potential adopter faces and the nature of the innovation itself. This exploratory research was confined to the first factor in that attempts were made to isolate personal characteristics that may govern the rate at which microcomputer technology is being adopted. Thus, the major problem explored concerned to the following two questions:

1. To what extent do students who took an agricultural education credit course on microcomputer applications now use the technology in their occupations?
2. What characteristics distinguish former students who adopted from those who have not adopted microcomputer technology?

OBJECTIVES

To guide the investigation and provide it with limitations, the following objectives were established:

1. To develop demographic profiles of students who enrolled in an agricultural education course on microcomputer applications who now use or do not use microcomputers in their occupations.
2. To describe (a) applications former students are making of microcomputer technology and (b) how skillful they perceive themselves to be in performing the applications.
3. To explore factors that discriminate between former students who are users and non-users of microcomputer technology.
4. To compare attitudes about microcomputers held by former

students who use and those who do not use microcomputers in their occupations.

RELATED LITERATURE

Microcomputer technology appears to be altering procedures agricultural educators have traditionally used to deliver instructional programs. Several studies have documented that this technology is now being used by this group of educators. Bowen, Mincemoyer, & Parmley (1983) noted that almost half of the departments of agricultural education in institutions across the United States were using microcomputer technology in 1983. Competencies vocational agriculture teachers need to make effective use of the technology have been examined by several researchers (Miller & Foster, 1985; Bowen, 1984; Hudson, 1983).

Numerous microcomputer applications are being tested for their worth in the agricultural education classroom (Becker & Shoup, 1985; Johnson, Carter, & Miller, 1984; Rohrbach, 1983). These controlled studies tend to suggest that microcomputer technology can be used to deliver instruction which results in levels of cognitive learning similar to those produced by traditional lecture-discussion instructional approaches. Attitudes of computer-using students also tend to be very similar to those of students taught by lecture-discussion procedures. These studies appear to suggest that microcomputer technology has many roles to play in delivering instructional programs in agricultural education.

If microcomputers are to be extensively used in agricultural education, this group of professionals must not only be willing to use the technology, but must also have the requisite competencies. The diffusion and adoption process outlined by Lionberger and Gwin (1982) indicates that persons who completed an agricultural education course about microcomputer applications moved through four of the five steps in the process (awareness, interest, evaluation, and trial). The fifth step, i.e. adoption, occurs when the technology is used on a regular basis. Lionberger and Gwin suggest that individuals of certain traits will adopt and use new technology more readily than persons of different characteristics. Does this supposition hold for microcomputer technology and agricultural education professionals?

METHODS AND PROCEDURES

Population and Sample

The population for this study consisted of students enrolled in a microcomputer applications course taught at Mississippi State University from 1981 to 1985. The course was taught on a 15 week semester basis and students enrolled for three hours of graduate or undergraduate credit. Course sessions included 30 contact hours of lecture and 30 hours of laboratory activities using microcomputers. Students who took the course were vocational agriculture teachers, Extension personnel, other teachers, full-time students studying agricultural education or other agriculture majors, and agribusiness personnel.

Since this research concerned the adoption of an emerging technology, the researchers felt it would be inappropriate to include inter-

national students who took the course because their cultural, economic, and political situations could have distorted the interpretations that would be possible as a result of the findings. Thus, the target population was limited to 324 U.S. citizens who took the Agricultural and Extension Education microcomputer applications course between 1981-1985 at Mississippi State University.

A stratified random sample of 150 students was drawn based on sampling procedures developed by Oliver and Hinkle (1981). The population was stratified by sex of the students and by level of credit received (graduate or undergraduate) to understand more fully the influence these two variables might have on the adoption process.

Instrumentation and Data Collection

A mailed questionnaire developed to collect the data was content validated by a panel of agricultural educators and computer scientists at Mississippi State University. The demographic data and general information section of the instrument contained items about the students' occupation, level of education completed, age, other computer credit courses and inservice education activities completed, whether a microcomputer was used in their occupation and the number of hours per week, and the type of microcomputer hardware owned by the students. Course files were used to determine the students' sex, grade earned in the Agricultural and Extension Education course, year the course was taken, and the level of credit sought.

To measure the applications being made of the technology, the students rated 15 common applications on a scale of Rarely Performed (1) to Often Performed (10). A rating of zero (0) was assigned if a student had never performed an application. A 10-point scale was also used to measure what skills the respondents had in performing the applications. A rating of 1 meant unskilled and a rating of 10 indicated skilled. A zero was used if the respondent had never performed an application. A 12-item scale developed by Cantrell (1982) and revised by Mitchell (1985) was used to measure student attitudes about computers. Students responded to the 12 items using a scale of Strongly Disagree (1) to Strongly Agree (8). A pilot test was conducted to establish reliability for the subscales on the instrument. The applications scale had a Cronbach's alpha reliability coefficient of .86, the skills scale a coefficient of .95, and the microcomputer attitudes scale a reliability of .68.

The major dependent variable in the study (Users and Non-Users of Microcomputer Technology) was measured with a yes/no response to the question: "Do you use a microcomputer in your occupation?"

The data collection procedures were also refined during the pilot test since the researchers had to locate individuals who were enrolled as much as five years earlier. The data were collected during the July 15-August 31, 1985 time frame. The response rate was 85% (128 of 150 instruments returned). Data obtained from class records were used to compare the 22 non-respondents with the respondents. The two groups were not significantly different ($p>.05$) in terms of their grade in the course, sex, and type of credit earned in the course.

FINDINGS

The findings will be presented to correspond with the stated objectives of the study.

Objective 1 (Demographic Profile)

Descriptive data will be presented to develop three pictures of the respondents: (1) former students who indicated that they use microcomputers in their occupation, (2) former students who do not use microcomputers in their occupation, and (3) an overall picture for the 128 former students who returned the instrument.

Table 1 lists eight variables concerning the 77 former students who use microcomputers in their occupations, the 49 who do not, and the sample as a group of 128. The mean age for all respondents was 33 years. The microcomputer users were slightly older at 34 years and the non-users were 32 years of age. Roughly one third of the sample were females and this percentage was very similar for both users and non-users of microcomputer technology.

In terms of their highest level of education, 25% of the sample had no bachelor's degree, almost 40% held a bachelor's, 27% a master's, and just over eight percent either an educational specialist or a doctoral degree. While almost 40% of both the users and non-users held a bachelor's as the highest degree, a noticeable difference occurred with three other levels of this variable. Almost 40% of the non-users held no college degree while only 14% of the users did not have a bachelor's degree. Slightly over 20% of the non-users held a master's degree, but almost one-third of the users possessed a master's. Finally, 14% of the users held an educational specialist or doctoral degree, but none of the non-users had obtained this level of education.

The sample included state, district, and county Extension personnel (20%), vocational agriculture teachers (15%), other teachers (20%), business professionals (15%), and persons classified as other (30%). The "Other" category included full-time students and persons who did not have a position they considered full-time. In terms of microcomputer users, 28% were Extension personnel, 19% other teachers, 18% vocational agriculture teachers, 19% in the other category, and 14% employed in business. Almost 45 percent of the non-users were in the "Other" category and 20% categorized as other teachers.

The sample was almost evenly divided by the type of credit sought for the Agricultural Education microcomputer course (47% undergraduate v. 53% graduate students). In terms of the users and non-users, almost 65% of the users took the course for graduate credit while only 35% of the non-users took the same course for graduate credit. The microcomputer users made an average grade of 3.56 in the course and the non-users 3.27 on a scale of A=4.00 and a D=1.00

Just over 22% of the users had taken another computer course for academic credit while 12% of the non-users had studied other credit courses about computers. The computer users also tended to own a microcomputer (35%) whereas just over 10% of the non-users owned a microcomputer.

Table 1

Selected Characteristics of Former Students
Who Use or Do Not Use Microcomputers in Their Occupations

Variable	Users (n=77)	Non-Users (n=49)	All Cases (n=128)
Mean Age	34.2 (9.14 S.D.)	32.6 (12.5 S.D.)	33.1 (10.6 S.D.)
Sex			
Male	52 (67.5%)	32 (65.3%)	85 (66.4%)
Female	25 (32.5%)	17 (34.7%)	43 (33.6%)
Highest Degree			
No Bachelor's	11 (14.3%)	19 (38.8%)	32 (25.0%)
Bachelor's	30 (39.0%)	20 (40.8%)	50 (39.1%)
Master's	25 (32.4%)	10 (20.4%)	35 (27.3%)
Specialist/Ph.D.	11 (14.3%)	0 (00.0%)	11 (8.6%)
Present Position			
Extension	22 (28.6%)	3 (6.1%)	25 (19.5%)
Vo Ag Teacher	14 (18.2%)	5 (10.2%)	19 (14.8%)
Other Teacher	15 (19.5%)	10 (20.4%)	25 (19.5%)
Business	11 (14.3%)	9 (18.4%)	20 (15.6%)
Other	15 (19.5%)	22 (44.9%)	39 (30.1%)
Credit for Ag Ed Computer Course			
Undergraduate	27 (35.1%)	31 (63.3%)	60 (46.9%)
Graduate	50 (64.9%)	18 (36.7%)	68 (53.1%)
Mean Grade for Computer Course*	3.56 (.57 S.D.)	3.27 (.64 S.D.)	3.44 (.61 S.D.)
Another Computer Course Taken			
Yes	17 (22.7%)	6 (12.5%)	23 (18.5%)
No	58 (77.3%)	42 (85.7%)	101 (81.5%)
Computer Owner			
Yes	27 (36.5%)	5 (10.2%)	33 (26.6%)
No	47 (63.5%)	44 (89.8%)	91 (73.4%)

* - Grades computed on 4.00 scale (A = 4; E = 0)

Objective 2 (Microcomputer Applications)

The subjects for the study were asked to indicate how often they performed selected microcomputer applications. A scale of Rarely Perform (1) to Often Perform (10) was used to measure how frequently an application was performed. A zero was used to indicate if a student had never performed an application. To acquire an indication of how skillfully the former students performed the 15 applications, a scale of Unskilled (1) to Skilled (10) was used. The respondents were instructed to use a value of zero (0) if they had never performed an application. Listed in Table 2 are the 15 applications along with ratings for how often the respondents performed an application and at what skill level.

The most frequently performed application involved filing various types of information. Maintaining mailing lists and using word processing were the next two most frequently performed microcomputer applications. Rated lowest in terms of how often it was performed concerned testing students by microcomputer. Keeping students' grades by microcomputer was the 14th lowest rated application.

The two applications respondents indicated they were most skillful in performing concerned the use of mailing lists followed by filing information on microcomputers. Keeping inventories by microcomputer was the third highest rated application in the skills category. Other highly rated applications included keeping financial records, keeping student records, using decision-making software, and using word processing. Rated lowest in terms of skills was the testing of students by microcomputer application. Rated next lowest was the use of database management software.

Objective 3 (Users Vs. Non-Users)

The third objective for this study was to explore factors that may discriminate between users and non-users of microcomputer technology. Listed in Table 3 is the result of a discriminant analysis performed to isolate such factors. A significant discriminant function labeled Adopt or Not in Table 3 shows that a group of five variables explained 33% of the variation in whether or not former students adopted and used microcomputer technology in their occupations (Canonical R of .57 squared equals .33). This group of variables lowered the unexplained variance from 100% to 67% as noted by the Wilks Lambda of .67.

Also shown in Table 3 are the five variables that comprise the significant function. The variable concerning participation in microcomputer inservice activities lowered the Wilks Lambda to .88. Attitudes the respondents had about microcomputers, when combined with the variable about an inservice activity, lowered the Wilks Lambda to .79. The other three variables in the function and the amount of variance they explained include (1) owning a microcomputer (5%), (2) having a B.S. or higher degree (4%), and (3) final grade earned in the Agricultural Education microcomputer applications course (3%).

Objective 4 (Attitudes About Microcomputers)

The fourth objective of the study was to determine whether respondent attitude about microcomputers differed for users and non-users of microcomputer technology. This variable was measured on a scale consisting

Table 2

How Often Former Students Performed Selected Microcomputer Applications and at What Skill Levels

Application	How Often *				Skill Level**			
	n	M	SD	Rank	n	M	SD	Rank
Filing Information	77	5.30	3.33	1	74	6.10	2.92	2
Maintaining Mailing Lists	57	5.18	3.81	2	56	6.55	3.28	1
Using Word Processing	58	4.36	3.51	3	53	5.41	3.28	7
Keeping Financial Records	69	4.22	3.42	4	67	5.58	2.94	4
Keeping Inventories	60	4.20	3.55	5	59	5.73	3.12	3
Teaching with Microcomputers	60	4.13	3.36	6	55	4.55	2.94	10
Accessing and Using Decision-Making Software	67	4.03	3.00	7	65	5.42	2.80	6
Keeping Student Records	53	3.83	3.49	8	50	5.44	3.38	5
Using Spreadsheets	56	3.80	3.12	9	52	4.71	3.04	8
Tutoring Using Microcomputers	57	3.26	2.82	10	52	4.08	3.01	13
Programming in BASIC	76	3.21	2.54	11	75	4.61	2.68	9
Using Computer Networks	44	2.96	3.02	12	41	4.37	3.14	11
Using Database Managers	50	2.74	2.72	13	47	3.72	2.89	14
Keeping Grades by Microcomputers	43	2.51	2.77	14	38	4.21	2.83	12
Testing Students	46	2.07	1.96	15	42	3.64	2.76	15

* - Computed on Scale of Rarely Perform (1) to Often Perform (10). Zero (0) used if student never performed the application.

** - Computed on Scale of Unskilled (1) to Skilled (10). Zero (0) used if student never performed the application.

Table 3

Discriminant Analysis for Former Students Who Adopted and Used Microcomputer Technology in Their Occupations and Those Who Have Not Adopted

Function Derived	Eigenvalue	Canonical R	Wilks Lambda	Chi Square	d.f.	Sig.
Adopt or Not	.48	.57	.67	44.9	5	.0000

Discriminating Variables in Adopt Function	F to Enter[a]	Wilks Lambda	Standardized Discriminant Coefficient
Attended a Microcomputer Inservice Activity	7.57	.88	.44
Attitude about Microcomputers	9.06	.79	.49
Owns a Microcomputer	6.19	.74	.40
Having a B.S. or Higher Degree	6.37	.70	-.41
Final Grade in Ag Ed Computer Course	4.98	.67	.37

a - Only variables significant at the .05 level for 1 and 113 d.f. were included in the discriminant function.

of 12 items respondents rated from Strongly Disagree (1) to Strongly Agree (8). A respondent's score was a summation of the ratings given for the 12 items. Thus, respondent scores could range from 12 to 96. Non-users of microcomputer technology had a mean of 71.5 and the users a mean of 79.5. The data presented in Table 4 indicate that the users were significantly more positive than the non-users in their attitudes about microcomputers.

Table 4

Attitudes About Microcomputers Held by Users and Non-Users of Microcomputer Technology

Group	n	Mean	S.D.
Non-Users	49	71.5	10.4
Users	77	79.5	10.6
Total	126	76.4	11.1

$t = -4.15$; d.f. = 124; $p<.05$

CONCLUSIONS

The following conclusions were formulated based upon the findings achieved in this study.

1. Users and non-users of microcomputer technology tended to be of the same age range.
2. Males tended to outnumber females in a ratio of 2:1 in terms of both computer users and non-users.
3. Filing, maintaining mailing lists, word processing, and recordkeeping were most frequently performed applications.
4. The applications performed most often tended to be those the respondents indicated they had the most skill in doing.
5. The best indicators of who used or did not use microcomputer technology were participation in microcomputer inservice activities, attitude toward microcomputers, owning a microcomputer, having a bachelor's degree or higher, and the final grade earned in the Agricultural Education microcomputer applications course.
6. Users of microcomputers tended to be more positive in their attitudes toward computers when compared with non-users.

RECOMMENDATIONS

The following recommendations are presented based upon the findings generated in this study for persons who completed a course on microcomputer applications.

1. Participation in non-credit inservice activities and attitude toward computers should be used when determining who will adopt and use microcomputer technology. Other indicators include whether a microcomputer is owned, having a bachelor's degree or higher, and grades in a microcomputer applications credit course.
2. Additional research is needed to determine how an individual's employment situation and the nature of microcomputer technology influence the rate of adoption.

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Research Paper Critique

ADOPTION OF COMPUTER TECHNOLOGY BY AGRICULTURAL EDUCATORS

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I am working in the information office at the Extension Office and also have the opportunity to work with Winrock International. To give you an idea of how information about the future doesn't diffuse, I work with Dr. Lineburger on a farming systems research project and this is the first time I've heard of the very excellent study mentioned in their paper. I just visited with them last week and we're looking at information processing in management and how it affects farming systems research. Thus, this paper was very interesting to me.

I got a lot of good ideas as I went through the paper and I think that with just a preliminary visit with Danny, he gave me the notion that they were primarily interested in exploring some of the variables. I have mostly questions about what I would do if I had this information. They had looked at three types of variables: the situation, the nature of the innovation itself and the characteristics of the innovator. I think that given the kind of variance they were able to explain they might have been able to pick up a good bit more if they had looked at some of those situational variables and the characteristic itself. The reason I say that, here in Arkansas, from what I've seen those of us who have a chance to work with a computer who have been trained we will beg, scream and holler to be able to work on one. If there is not one around or if they are within the system, but very difficult for you to use the machine, then you're going to have a hard time using it even though you would like to. Therefore, on the attitude part of the scale, or I guess I should have said on the dependent variable, rather than having just a statement it would have been nice to have had a question: If you had a computer available, would you have been working on it? Or:

Is the kind of computer you have available to you the kind you were trained on?

Danny I do not know exactly what you have in your micro-computer course, but I was real interested to know that because I think we ought to do a lot more training in Extension as well as for people outside the country. We are not real sure what we ought to be teaching in the courses. What kind of computer applications we ought to be teaching and that sort of thing. So I would have to know what sort of applications they were actually trained in, e.g. data base, management, or word processing.

I thought that the variables themselves on the skilled and unskilled, and the attitudes were extremely interesting. Dr. Lineburger and the group we are working with, would like to develop an index of information processing skills and management skills which would be an indication of modernization or sophistication of how well your organization, where ever it may be, is meeting the demands of modern information processing. In other words, if you have a high aptitude and your skill levels are high then we would hope that would indicate your organization is reaching some level of competency in this information explosion. It would give you some indication of where your institution is in terms of information processing development.

Each individual could be measured on a scale and I think that the skills test would give you an idea of where each of us in this room would be on such an index. A weak link in your organization could be measured in terms of the individual you may have in a slot, who does not have a high attitude, high aptitude, or high skill level. I haven't done much work in that but I think its an extremely interesting area.

The sample itself was 2/3 male and 1/3 female, which did not seem to influence the final analysis. I am not conversant with discriminate analysis, but if R values are like multiple correlation, can you use your R in discriminate analysis to explain? In other words, what is a good R value for discriminate analysis?

There are other factors out there doing something that was not identified. I would really like to look at a control group, a group of people that had not been through your course, or look at that group of "others", I was not certain as to the composition of that "other" group. I would like to explore with you a comparison of people who were in the "other" group with a control group of people about the same age level who are also in extension, maybe the same make-up as this, and see how they would differ from your group of students. I would also like to take the international students and see how they would fare against our people, that is the people in this group. I thought it was an excellent study and I hope to be able do some other work with Dr. Lineburger that will follow-up on this research.

MICROCOMPUTERS IN VOCATIONAL AGRICULTURE PROGRAMS

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Microcomputers In Vocational Agriculture Programs

The use of microcomputers in education and agriculture continues to increase. Several studies have been conducted in the area of microcomputer use in vocational agriculture programs in recent years.

Cepica (1984) found that larger schools tended to use microcomputers more than small schools for both administration and teaching. In addition, 54% of those teachers who were not already using microcomputers planned to do so in the next five years and 42% of the schools had microcomputers available for use by vocational agriculture students and teachers. Cepica also found that both pre-service and in-service instructions in the use of microcomputers was needed.

Miller (1984) reported that vocational agriculture teachers in the United States perceived that microcomputers were needed in their programs. He also found that the existence of microcomputers in the vocational agriculture department was related to whether vocational agriculture teachers perceived that their principal supported the use of microcomputers.

These studies as well as other indicate a need for microcomputer instruction in the vocational agriculture program. It has been recommended that teacher educators take an active role

in training and assisting teachers with the use of microcomputers in the vocational agriculture program. (Cantrell and Byler 1983).

Purpose and Objectives

The purpose of this study was to determine the extent to which microcomputers are used in the vocational agriculture program in Louisiana. The objectives were:

1. Determine the types of microcomputers and software being used by Louisiana teachers in their vocational agriculture departments.
2. Determine the availability of microcomputers and software outside of the vocational agriculture department.
3. Determine the need for and perceived constraints to the use of microcomputers in the vocational agriculture program.
4. Determine the amount of training vocational agriculture teachers had received in microcomputer operations and the instructional needs of vocational agriculture teachers in the area of microcomputers.
5. Determine if the existence of microcomputers in the vocational agriculture departments of the respondents is distributed independently of school size, years vocational agriculture teaching experience, number of

students in the vocational agriculture program, and college degree held.

Procedure

A survey instrument was developed for the collection of data for the study . The survey instrument was reviewed by State Department of Education staff and agricultural education faculty members at Louisiana State University and the University of Southwestern Louisiana before field testing was conducted.

The 25 question instrument was administered to vocational agriculture teachers who attended the Louisiana Vocational Agriculture Leadership Camp during the summer of 1985. Sixty-three percent of all Louisiana Vocational Agriculture teachers completed the instrument during the camp.

Next, two mailings of the research survey instrument were sent to those teachers who did not attend the leadership camp. After these mailings, a combined response rate of 86 percent was attained. A random sample of 20 nonrespondents was surveyed by telephone. Subsequent data analyses found that no significant differences existed among the three survey method groups. All data were combined for analysis with a total response rate of 93 percent being obtained.

Means, percentages, and frequencies were computed using the SPSS computer program for objectives 1 thru 4. Chi-Square tests of independence were utilized for objective 5.6

Results

Data were collected from 256 instructors representing 93% of the vocational agriculture instructors in Louisiana. Almost one-fourth (24%) of the respondents were 30 years old or younger, 43% were between the ages of 31 and 40, 33% were 41 years old or older.

Over one-fifth (21%) of the respondents had taught vocational agriculture 5 years or less, 27% had taught 6 to 10 years, 28% had taught 11 to 20 years, and 14% had taught more than 20 years.

Education level of the respondents varied greatly: 45% had a Bachelor's degree, 27% had a Master's Degree and 28% had 30 or more semester credit hours above their Master's Degree or a Education Specialist Certificate.

The data indicated that 25% of the respondents were employed in school that had 200 or less students in grades 9 through 12, 25% had 201 to 400 students and 50% had more than 400 students.

One-fifth (20%) of the respondents had 50 or fewer students in their vocational agriculture program, while 45% had 51 to 100 students, and 35% had over 100 students.

Computer Use by Departments with Computers

Almost one-third (30%) of the respondents had at least one microcomputer in their vocational agriculture department. Of those departments that had microcomputers, 40 percent had Apple computers and 19 percent had TRS-80 computers.

The types of application and software usage employed by vocational agriculture departments is listed in Table 1.

Almost three-fourths (73%) of the respondents indicated that the microcomputers located in their vocational agriculture departments received "some" or "little" use while 27% indicated their microcomputers received "much" or "very much" use.

Computers Available in the School

Most (85%) of the respondents indicated that the school had microcomputers that were located outside the vocational agriculture department. The amount of time the microcomputers were available for vocational agriculture use is shown in Table 2.

The types of microcomputers and software located outside the vocational agriculture department and available to the respondents is shown in Table 3.

Microcomputer Needs and Constraints

Over two-thirds (76%) of the respondents indicated a need for microcomputers in their vocational agriculture department. Table 4 displays the respondents reasons for believing that a need

exists for microcomputers. Perceived needs for and constraints on the use of microcomputers are also shown in Table 4.

Microcomputer Skills of Teachers

Amost half (43.9%) of the respondents indicated they had no training or experience in the use and/or operation of microcomputers. Those teachers who had received training indicated that their training came from either short courses or universicy courses. These data are presented in Table 5.

When asked to indicate the method by which they would like to receive microcomputer training, approximately one-third of the respondents indicated graduate courses and short courses (either one week or one/two day long). Only 10% indicated that they did not want to be trained in the use of microcomputers. These data are presented in Table 6.

Other Findings

The Chi-Square test for independence was utilized to determine if the existence of microcomputers in the vocational agriculture departments of the respondents was distributed independently of school size, years vocational agriculture teaching experience, number of students in the vocational agriculture program, and college degree held. None of the analyses resulted in a significant Chi-Square value. Therefore,

the existence of microcomputers in the respondents' departments was distributed independently of the variables named above. These data are presented in Tables 17-20.

Conclusions

The following conclusions are based on the findings reported above:

1. Only 30% of the vocational agriculture departments had microcomputers, but most teachers and their students had access to microcomputers for instructional use.
2 The Apple IIe followed by the TRS-80 are the two types of microcomputers most commonly available for vocational agriculture teacher use.
3. Word processing, budget, and spreadsheets are the most common computer software utilized by vocational agriculture teachers.
4. Most vocational agriculture teachers believe that microcomputers are needed in their programs because they better prepare their students for the job market.
5. It appears that less than one-half of the teachers had received some training in the use of microcomputers.
6. School size, years vocational agriculture teaching experience, number of students in the vocational agriculture program, and college degree held are not

associated with whether vocational agriculture teachers have computers in their vocational agriculture departments.

Recommendations

1. In-service programs for vocational agriculture teachers should use primarily Apple IIe and TRS-80 microcomputers as these machines are most commonly available to teachers. (Although this recommendation is based on the findings of this study, teacher educators and state supervisors should note that the National FFA Computer Service has indicated that they will support the development of software for IBM compatible (MS-DOS) machines.)
2. The in-service program for vocational agriculture teachers should include the use of word processing, budget, and spreadsheet software along with the introduction of other types of applications software.
3. Pre-service agricultural teacher education programs should prepare teachers to use microcomputers in the areas indicated by this study.
4. Since most vocational agriculture teachers indicated that microcomputers are needed in the vocational agriculture program, additional research should be conducted to

determine how microcomputer instruction should be incorporated into the curriculum.

References

Cantrell, Joy and Byler, Ben L. (1983). An assessment of attitudes, needs, and delivery system for microcomputer applications by agricultural and extension educators in Mississippi. Proceedings of the 10th Annual National Agricultural Education Research Meeting.

Cepica, Marvin J. (1984). Integration of Computer Related Instruction in Texas Vocational Agriculture Programs. Final Report. Lubbock, Texas: Texas Tech University.

Miller, Charles. (1984). Microcomputer Use in Vocational Agriculture Programs in the United States. Master of Science Thesis, Louisiana State University, Baton Rouge.

Table 1.

Computer Applications and Software Usage in Vocational Agriculture Departments (N=75)

Variable	Departments with microcomputers N	%
Computer Usage		
Record Keeping	37	49.3
Computer Games	26	34.7
Test File	21	28.0
Awards Applications	6	12.0
Other	33	44.0
Software Utilized		
Word Processor	33	44.0
Budgets	24	32.0
Spreadsheets	16	21.3
None	8	10.7

Note 1. Totals do not add to 100%.

Table 2.

Microcomputer Availability for Vocational Agriculture Use in Schools with Microcomputers (N = 218)

Amount of Time Available	N	%
Microcomputers in school are not available to vocational agriculture program	87	39.8
Computers in school are available:		
Less than one period per day	39	17.9
One period a day	41	18.8
Two periods a day	5	2.3
Over two periods a day	25	11.5
After school hours	18	8.3
No response	3	1.4
Total	218	100.0

Table 3.

Microcomputers and Software Available in the School (N = 218)

Variable	N	%
Computer Types Available:		
Apple IIe	86	39.4
TRS-80	47	21.6
IBM PC	21	9.6
Commodore	17	7.8
Others	17	7.8
No response	30	13.8
Software Available:		
Word Processing	101	46.3
Budgets	36	16.5
Spreadsheets	35	16.1
Other	22	10.1
No response	39	17.9

Note 1. Totals do not add to 100%.

Table 4.

Need for and Constraints on Microcomputer Use in Vocational Agriculture (N = 256)

Variable	N	%
Why microcomputers are needed:		
Allows one to be more efficient	107	41.8
Better prepares students for college	92	35.9
Better prepares students for the job market	148	57.7
Other	13	5.1
Constraints on microcomputer use:		
Requires too much class time	55	21.5
Not enough software for agricultural application	78	30.5
Requires someone with experience to operate	74	28.8
Too costly to be practical	50	19.5
Other	29	7.5

Note 1. Totals do not add to 100%.

Table 5.

Microcomputer Experiences of Teachers. (N = 256)

Previous training	N	%
None	90	43.9
1 or more college courses	65	25.4
1 or more short courses/workshops	92	35.9
Some personal experience using programs and manuals	49	19.1
Other	6	3.5

Note 1. Totals do not add to 100%.

Table 6.

Microcomputer Training Activities Needed by Teachers as Perceived by Respondents. (N = 256)

Training Activities Needed	N	%
None	28	10.9
University course for graduate credit	81	31.6
University course	22	8.6
1 week short course	96	37.5
1 to 2 day short course	80	31.3
Other	17	6.6

Note 1. Totals do not add to 100%.

Table 7.

Chi-Square Analysis of Whether Respondents had Microcomputers in Their Departments by Vocational Agriculture Teaching Experience

Years Vo-Ag Teaching Experience	Microcomputers in Vo-Ag Department			
	Yes		No	
	Observed	Expected	Observed	Expected
0 - 5	16	15.5	36	36.5
6 - 10	20	20.2	48	47.8
11 - 15	18	16.1	36	37.9
16 - 20	9	12.5	33	29.5
over 20	12	10.7	24	25.3

$X^2 = 1.97$, $N = 252$, d.f. = 4, $p = .74$

Table 8.

Chi-Square Analysis of Whether Respondents had Microcomputers in Their Departments by Number of Vocational Agriculture Students

Number of Students	Microcomputers in Vo-Ag Department			
	Yes		No	
	Observed	Expected	Observed	Expected
0 - 25	5	3.3	6	7.7
26 - 50	12	11.6	27	27.4
51 - 100	31	33.6	82	79.4
Over 100	27	26.5	62	62.5

$X^2 = 1.62$, $N = 252$, $d.f. = 3$, $p = .65$

Table 9.

Chi-Square Analysis of Whether Respondents had Microcomputers in Their Departments by School Size

School Size (Number of Students)	Microcomputers in Vo-Ag Department			
	Yes		No	
	Observed	Expected	Observed	Expected
Under 100	7	6.0	13	14.0
100 - 200	11	13.1	33	30.9
201 - 400	16	19.1	48	44.9
401 - 500	7	6.3	14	14.7
Over 500	34	30.5	68	71.5

$\underline{X}^2 = 2.18$, $\underline{N} = 251$, $\underline{d.f.} = 4$, $\underline{p} = .70$

Table 10.

Chi-Square Analysis of Whether Respondents had Microcomputers in Their Departments by Degree Held

Degree Held	Microcomputers in Vo-Ag Department			
	Yes		No	
	Observed	Expected	Observed	Expected
Bachelors	35	34.0	80	81.0
Masters	16	19.5	50	46.5
Above Masters	23	20.4	46	48.6

$\underline{X}^2 = 1.41$, $\underline{N} = 250$, $\underline{d.f.} = 2$, $\underline{p} = .49$

Research Paper Critique

MICROCOMPUTERS IN VOCATIONAL AGRICULTURE PROGRAMS

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Strengths

1. A concise review of the literature was provided.
2. The purpose and objectives of the study were clearly stated.
3. Content validity (and presumably reliability) of the instrument was established through a review by supervisors and teacher educators.
4. A sample of nonrespondents was followed up and the results were compared with respondents to determine if differences existed.
5. The results were clearly presented.
6. The study provides useful information in developing preservice and inservice educational programs for vocational agriculture teachers.

Suggestions for Improvement

1. Indicate the total number of vocational agriculture teachers, departments, and schools in Louisiana.

2. Since the total population was surveyed, a rationale should be provided for using an inferential statistical technique (chi-square test for independence).

3. Some of the conclusions could be strengthened. In some instances they are a restatement of the findings (for example, see conclusion 1), while in other instances they do not adequately address the objectives (for example, compare conclusion 5 with objective 4).

4. In future studies, if years of teaching experience, number of students, and school size could be collected as continuous rather than categorical data, the analysis could be strengthened.

Implications

Is further study needed to determine why "almost three fourths (73%) of the respondents indicated the microcomputers located in their vocational agriculture departments received 'some' or 'little' use" (p. 6)?

A COMPARISON OF TWO INSTRUCTIONAL METHODS FOR TEACHING MICROCOMPUTER COMPETENCIES TO EXTENSION PERSONNEL IN MISSISSIPPI

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INTRODUCTION

We live in a dynamic world which requires constant adjustment to new ideas and technologies. Educational organizations and agencies have a responsibility to help people make these adjustments. In order to carry out this responsibility educational groups must first adjust to the new ideas and technologies themselves.

Agricultural educators (vocational agricultural instructors and extension agents) are currently facing one of their greatest challenges: the application of microcomputer technology. They must aid their clientele in adopting this technology and they must incorporate the technology into their own educational and office management activities. Microcomputer technology offers computing power to people and organizations who have never before had such an opportunity. Pilot studies by the Mississippi Cooperative Extension Service (MCES) in 1980 demonstrated the worth of the technology in Cooperative Extension Service work.

To utilize this technology effectively non-computer personnel must be trained in computer applications. Teaching a person to use a microcomputer can be provided in one or more of the following methods: 1) traditional lecture/demonstration (TLD), 2) computer assisted instruction (CAI), 3) audio instructional package, 4) video instructional package, and 5) interactive video instructional package. In this study, resources in MCES allowed for computer instruction to be conducted by the TLD or CAI method.

PURPOSE AND OBJECTIVES

The purpose of this study was to determine whether there was a significant difference in cognitive knowledge about microcomputers when MCES personnel were taught basic skills by the CAI method, the TLD method, and by a combination of these. The objectives of the study were to determine the effect method of instruction had on immediate cognitive achievement, delayed/self-study achievement, immediate student attitude, and delayed/self-study attitude.

PROCEDURE

This study was conducted using the pretest-posttest control group quasi- experimental design. The researcher also tested for effects extended in time using a second posttest three weeks after the initial treatment. Subjects for the study were intact groups of MCES personnel scheduled to receive microcomputer systems and introductory microcomputer training at four district training sessions. The four intact groups were randomly assigned to two treatment groups. However, it was not possible for the research to randomly assign subjects to the groups. Treatment A received instruction by the TLD method while Treatment B subjects were instructed by the CAI method. After the initial treatment, each group was divided into two subgroups with one subgroup continuing the treatment of its parent group while the other subgroup received the contrasting treatment. Secondary or delayed achievement was measured with a second posttest. This design is illustrated as follows:

O_{a_1}	X_a	O_{a_2}	X_{aa}	O_{aa_3}
			X_{ab}	O_{ab_3}
O_{b_1}	X_b	O_{b_2}	X_{bb}	O_{bb_3}
			X_{ba}	O_{ba_3}

Treatment A, the TLD method, consisted of approximately two hours of detailed lecture and demonstration during a morning session based on criterion- referenced objectives. The afternoon session involved laboratory work and hands-on experience with microcomputers.

Treatment B, the CAI method, began with a brief overview lecture of the criterion-referenced objectives. Rather than the detailed lecture and demonstration of Treatment A, a CAI package was installed on each of the microcomputers and the subjects allowed to work at their own pace. The CAI package was based on the same criterion-referenced objectives as the material provided in Treatment A. Subjects also worked through the same laboratory exercise given the Treatment A group.

Researcher-developed instruments were validated by experts, field tested, reviewed, and revised. The 30-question multiple choice pretest and posttest had alpha reliabilities of .70 and .71, respectively. A positive discrimination index ranging from .10 to .56 was found for 29 of the 30 items. One item had a negative discrimination index of -.05. A difference index was calculated for the pre and posttest instrument. On this 30-item instrument the difference indices ranged from 6 to 67 which indicated all items were sensitive to learning.

Instructional materials and objectives were based on a list of micro computer competencies that other researchers had found to be essential for the subjects included in this study. The Semantic Differential Attitude Scale used to measure attitude toward methods of instruction contained a set of adjective pairs used by other researchers for the same purpose.

Analysis of covariance, with pretest scores as the covariate, was used to test null hypotheses pertaining to cognitive achievement. Analysis of variance was used to test null hypotheses relating to attitude about the method of instruction. Inferential techniques were used assuming subjects in the study represented future populations.

RESULTS

Cognitive achievement for the two treatment groups was not significantly different when measured immediately following treatment. However, a statistically significant difference was found between the means of two subgroups when CAI was the initial treatment and the follow-up treatment contrasted and duplicated the initial treatment. Approximately 7% higher achievement was obtained when the CAI method was followed up with the TLD method.

The Semantic Differential Attitude Scale indicated that attitudes toward instructional method differed significantly with subjects favoring the TLD method of instruction over the CAI method for initial instruction. On follow-up treatments attitudes differed significantly between the CAI-CAI subgroup and the TLD-TLD subgroup, the CAI-TLD subgroup and the CAI-CAI subgroup, and

the TLD-TLD subgroup and the TLD-CAI subgroup. In all three cases subjects favored the TLD method for follow-up instruction.

CONCLUSIONS

Failure to find a significant difference in cognitive achievement between subjects receiving microcomputer instruction by the TLD method and the CAI method implies that future microcomputer instruction for MCES personnel can be conducted with the CAI package without any expected decrease in cognitive achievement. Attitude scores favoring the TLD method of instruction over the CAI method could be due in part to familiarity with the TLD method and unfamiliarity with the CAI method. The most effective combination of instruction in terms of cognitive achievement and attitude was the CAI method followed up with the TLD method.

A Comparison of Mean Cognitive Achievement and Attitude Scores Among Groups Receiving Microcomputer Instruction by Two Different Methods.

Treatment Groups	Number in Group	Adjusted Mean Cognitive Score	Mean Attitude Score
(Initial)			
CAI	70	23.68	60.94 *
TLD	76	23.66	63.72
(Follow-up)			
CAI-CAI	34	23.59	56.68 *
TLD-TLD	38	24.76	64.58
CAI-TLD	31	25.70	62.90
TLD-CAI	38	24.73	60.24
CAI-CAI	34	23.75 *	56.68 *
CAI-TLD	31	25.88	62.90
TLD-CAI	38	24.65	60.24 *
TLD-TLD	38	24.57	64.58

* $p < .05$

Cognitive Score Potential Range: 0 to 30
Attitude Score Potential Range: 15 to 75
15 = Negative Attitude
45 = Neutral Attitude
75 = Positive Attitude

Research Paper Critique

A COMPARISON OF TWO INSTRUCTIONAL METHODS FOR TEACHING MICRO-COMPUTER COMPETENCIES TO EXTENSION IN MISSISSIPPI

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I would like to congratulate Dr. Elliott on what I consider to be a good research design for the objectives of which he sought to accomplish. I also think he thought through this process very well by selecting analysis of co-variance to adjust for pre-existing differences in group means. He did identify the weaknesses of utilizing intact groups and of using non-random assignment to the groups. I think the limitations were set forth in the study.

This instrument was developed by the researcher himself, and tested for reliability which strengthened the study. I do think, and I say this from my background in training agents in computer technology, that many times we need to take a stronger look at our content validity of the measure used. I think it is possible for people, especially if you're just talking about bit and bytes, to recite facts; but whether or not they have a basic understanding and our instrument is testing that understanding should be examined.

If you noticed, the overall attitude scores in terms of high, medium and low, that a score of 45 was a neutral score. Most of the means were 60 or above. There may have been stronger preference for the traditional lecture/demonstration, but I don't know that we can say that is really a negative finding in regard to using Computer Assisted Instruction, CAI. The groups did have some cognitive achievement. Danny answered some of the questions I had in regard to what they were teaching or trying to learn. I think perhaps, we should look at differences in the future. What are we teaching - basic computer applications, utilization of application software or are we teaching actually how to use a system? I feel there are some underlying principles and concepts a person needs to know in terms of subject matter when we're

talking about feed rations versus just how to boot up a system on a computer. Training is different as a result of this.

I was a little confused in the use of some of the terminology. In one reference the researcher talked about the delayed/self-study achievement. In another example, he talked about secondary achievement. I only assume that these were the same measure. Perhaps that should be clarified.

I questioned a little bit why the researcher chose to do the post test three weeks after the training. Perhaps, a stronger study would have tested again at six months or even more to see if there was still the same level of achievement.

It was explained that both methods of instruction, CAI and TLD, were based upon the same objectives which had been identified from some past research on computer competencies.
I do question, however, whether or not you can relay the same information from a computer screen that you do in a lecture. Those that are listening to a lecture do glean a little bit more information from discussions and questions.

The slides answered my question in regard to whether this was groups or individuals. In my experience with training in the past, if groups are working on a computer one person will set the pace. Those that have a little less skill will set back and let one person be the leader in the group. That may not make any difference based upon these results.

Because training is so expensive, I think this is a very important study in terms of showing us the direction we need to go to be training our personnel in the area of computer technology. Perhaps, it should be replicated one more time to see if we get the same results. One of my suggestions would be to have replications and split people out by age. It was found in this study that those that were younger in age did have a higher level of achievement and attitude. Also, I would like to see if cognitive achievement remains constant over time if you have access to a computer on a day to day basis.

My congratulations to Dr. Elliott on a fine and much needed study.

FIFTH GENERAL SESSION

PRESIDER:

JOE KOTRLIK
LOUISIANA STATE UNIVERSITY

FACILITATOR:

CLIFTON RICKETTS
MIDDLE TENNESSEE STATE UNIVERSITY

THE RELATIONSHIP OF PERSONALITY TYPES OF ARKANSAS COOPERATIVE EXTENSION SERVICE FACULTY TO JOB SATISFACTION AND PERFORMANCE

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Introduction

It is becoming increasingly recognized that the survival and success in our technologically and socially complex society depend upon the human asset. The efficiency and effectiveness of organizational performance are strongly influenced by individual and group characteristics. Thus, organizational success is directly related to the capabilities and motivations of the organizational members. However, hindering this performance is a complex process of selecting individuals who will render a long period of service to an organization. Career theorists feel that constant labor force movements are attributable to the improper matching of an individual's personality attributes to a particular organization's environment, and that these personality needs are better satisfied by some occupations than by others.

Career aspirants who are attracted to the occupational role of the extension agent may comprise a blend of behavioral types that will eventually find work environments that match their behavioral constitution. However, those that do not have and/or develop a characteristic personality and value profile that matches the organization may eventually decide to leave. This individual decision-making process is called personality or interest compatibility.

For the extension service, the individual position is the basic building block of productivity and effectiveness. However, there is no contribution to productivity or profit in any position which is not occupied by a trained, reliable, performing employee.

This situation exists within the extension service presently. From an organizational standpoint, it appears that the "matching process" of applicant to position is being severly hampered by a lack of information about the interests and personalities of persons who will find the job challenging, satisfying and rewarding.

Purpose and Objectives

The primary purpose of this study was to determine the relationship between the personality types of Cooperative Extension Service agents, their satisfaction and performance within the organization.

The objectives of the study were designed to provide a framework for investigating the organizational variables which contribute to performance and satisfaction with the job. The objectives were:

1. To determine the prevalent personality types of Arkansas Cooperative Extension Service faculty.
2. To determine the degree to which extension faculty are satisfied with their jobs.

3. To determine the relationship between personality types and job satisfaction.
4. To determine the relationship between personality types and job performance.

Procedures

The study was an ex post facto design. The population for the study consisted of the total professional faculty on full time appointment with the Arkansas Cooperative Extension Service. Through the use of mail questionnaires, 361 faculty members were surveyed.

The instruments used were the Myers-Briggs Type Indicator (MBTI) and the Cornell Job Descriptive Index (JDI). The MBTI consisted of 126 forced choice items which determined each of the four personality preferences of each individual faculty member: extravert-introvert, sensing-intuition, thinking-feeling, judging-perceiving. The JDI measured six areas of job satisfaction: satisfaction with work, pay, promotional opportunities, supervision, people, and the job-in-general.

Data were analyzed by chi-square tests, analysis of variance and multiple regression. Frequency distributions and measures of central tendency were also calculated. The .05 level of significance was established for all analyses in the study.

Results

Of the total, 290 faculty members returned the completed questionaires for an 80.5 percent response rate. Some 69.5 percent were field faculty and 30.7 were state faculty. Those faculty members with agriculture as their primary subject matter area accounted for the largest percentage of respondents. Home Economics accounted for the second largest group. The percentages are fairly consistent across all age groups with a slight increase in the 30-40 age group. Some 58 percent of the respondents were male. Over 70 percent of the respondents have Master's degrees and 20 percent have doctorate degrees. The distribution by tenure reveals that over 43 percent had been employed less than 10 years and 57 percent less than 15 years. The spread of salary ranges were also evenly distributed with 73 percent of the faculty earning less than $29,000, All of the demographic data is summarized in Tables 1 through 6.

The distribution of personality types with the Arkansas Cooperative Extension Service is presented in Table 7. The data presented indicate all sixteen types are present with the most frequent combination of ISTJ (28.6%) and ESTJ (19.9%). There are slightly more introverts (53.3%) than extraverts (46.7%). There were substantially more sensing types than intuitive types (80.5% and 19.5%), thinking types than feeling types (69.3% and 30.7%), and judging types than perceptive types (82.2% and 17.8%).

Over 60 percent of employees are of four personality types. These percentages are listed below:

TABLE 7
Major Personality Types of County and State Faculty

Type	Percent State	Percent County
ISTJ	26.1	34.1
ESTJ	22.1	14.8
ESFJ	9.0	11.4
SFJ	11.6	8.0

Hypothesis 1-a tested for differences in the proportion of county and state faculty by sensing, thinking and judging preferences. No differences were found for these groups. Both groups prefer sensing, county faculty (82%), state faculty (76%), ($X = 1.16$, $p=.28$) Over 82 percent of the total faculty are judging types, with 88 percent at the state level and 80 percent at the county level. Thinking is preferred three to one over feeling at the state level versus two to one at the county level. Of the total group, 69 percent are thinking types and 31 percent are feeling types ($X = 1.55$, $p = .21$) These results are shown in Table 9.

Sub-hypothesis 1-b tested for differences in the proportion of male and female extension faculty of the thinking (T) and feeling (F) types. There were 169 females and 118 males compared on this TF dichotomy.

There were significant differences of females and males on the TF dichomotomy with $X = 7.21$, $p=.01$. There are substantially more male feeling types (40 %) than females (24 %). In addition, 76 percent of the females are thinking types compared to 60 percent of the males. This TF relationship was also significant when combined with two kinds of perceiving $X = 11.77$, $p=.01$. The ST preference is found with 65 percent of the females compared to 48 percent of the males. The feeling preferences are evident for males as 27 percent are sensing-feeling (SF) and 13 percent are Intuitive (NF) types.

Significance was also found when judging and perceiving preferences were combined with thinking and feeling. ($X = 11.05$, $p = .01$). Some 62 percent of the females prefer the thinking-judging (TJ) combination with 34 percent of the males of the feeling-judging (FJ) type. This compares with only 18 percent of the female FJ types. Table 10 illustrates these findings.

There were significant differences found across the types by educational levels of the intuitive (N) and thinking (T) types. ($X = 43.24$, $p=.05$). Intuitive types were found less often than sensing types at each educational level, however, 30 percent of

the intuitives had doctorate degrees compared to 17 percent and 22 percent at the masters and bachelors level. This difference was not significant. Thinking (T) was preferred three to one over the feeling (F) preference for faculty with masters and doctorates. The data are found in Table 11.

Significant differences were also found among agricultural, home economics and 4-H faculty on the sensing (S) and feeling (F) types. Sensing is preferred by all groups but some 26 percent of the home economics faculty are of the intuitive (N) type compared to 19 percent for 4-H and 13 percent for agricultural. (X =6.67, p = .03). Likewise faculty differed on the thinking-feeling (TF) dichotomy (X = 7.27, p = .02). Over 76 percent of the agricultural faculty prefer thinking (T) compared to 69 percent for 4-H and 60 percent of the home economics faculty.

When combined with perception-judging and thinking-feeling, significant differences were also found. The data are shown in Table 12.

No differences were found in the proportion of administrators and non-administrators of the intuitive (N) and judging (J) types as a total group, however, there were differences in sub-groups. There were 22 percent more intuitive types within the administrative group (X = 6.15, p=.04). Also, those in administrative positions were 100 percent of the judging type, with specialists preferring judging five to one over perceiving (P) and field faculty four to one. (X =5.74, p=.05)

No significant differences were found in the sub-groups on the extravert-introvert (EI) dichotomy. There were less introverts than expected at the administrative level and more than expected at the specialist level.

The mean job satisfaction scores with the related aspects of the total measure are shown in Table 14. Pay and promotion scores received overall lower scores than the other variables.

TABLE 14
Mean Scores of Job Satisfaction Scores as Perceived by ACES Faculty (n=279)

Factor	Mean	S.D.	Range
Total Factors	150.86	27.99	0-216
Pay	13.62	6.46	0-27
Promotion	10.65	8.37	0-27
People	44.05	10.05	0-54
Supervision	42.23	11.42	0-54
Work	40.29	7.26	0-54
Job-In-General	46.97	6.88	0-54

Overall, there were no significant differences in job satisfaction among county and state faculty. However, significant differences were found by position, supervision, pay, promotion, work, and the job-in-general variables.

The area faculty were the least satisfied while district faculty were the most satisfied with supervision ($F=4.39$, $p=.01$). County and area faculty had much lower levels of satisfaction with pay than district faculty ($F = 11.17$, $p = .001$). Significant differences were also found when comparing the county and district faculty on the factor of promotion ($F=7.61$, $p=.001$). Additionally the county faculty were the least satisfied with the conditions of the work environment and the job-in-general. Data are shown in Table 14.

There was no overall difference in the job satisfaction of faculty in agricultural, home economics, and 4-H positions, however, there were significant differences among these positions on the factor of pay ($F=4.049$, $p=.003$).4-H faculty were the least satisfied with pay. Refer to Table 28. All mean scores were low for promotion.

Significant differences were found in the mean job satisfaction scores of the agents over 40 years of age ($F=8.76$, $p=.01$). Those faculty between the ages of 31-40 were the least satisfied and those ages 51-60 were the most saatisfied with their jobs. Differences were also found with age and the variables of people, pay, work, promotion and job-in-general. Those faculty age 23-30 were the least satisfied with the variable of pay ($F=5.53$, $p=.001$), work ($F=3.18$, $p=.01$) and job-in-general ($F=5.24$, $p=.001$). However, those in the 23-30 age group were the most satisfied with promotion while the faculty age 61-67 were the least satisfied ($F=2.49$, $p=.01$).

A positive and linear relationship was found as age increased, the satisfaction with job-in-general increased until age 50. At this age, the relationship becomes an inverse relationship. The differences were significant ($F=5.24$, $p=.001$) as the 23-30 age group were the least satisfied with the job-in-general while those age 41-50 were the most satisfied. Data are reported in Table 16.

There were no differences found in the mean satisfaction of male and female faculty members as a group. Differences were found on the factors of pay with male faculty reporting a lower mean score than females ($F=4.95$, $p=.05$). Table 17.

Although those with doctorate degrees reported a higher mean job satisfaction score, the differences were not significant overall. Again, those with doctorates were significantly more satisfied with the factor of pay than those with masters or bachelors ($F=5.03$, $p=.01$). Table 18.

There were differences in the overall job satisfaction scores of faculty by years of employment. Those with over 15 years of experience had a significantly higher level of satisfaction ($F=6.90$, $p=.01$). Faculty members with 6-10 years of employment show the least satisfaction while those with 26-30 years were the most satisfied. Tenure was also significant when coupled with the factors of pay, work, people, and promotion. Those with over 30 years of service had the highest group mean on satisfaction with pay; those with 6-10 years the lowest ($F=4.49$, $p=.01$). The same trend is found with tenure and work. Those with 6-10 years of service are the least satisfied ($F=3.11$, $p=.01$). As years of service increased so did the level of satisfaction on the factor of people ($F=3.94$, $p=.001$). Satisfaction with promotion is highest with the first five years of employment but fluctuated with five year intervals ($F=2.29$, $p=.05$). These results are reported in Table 19.

Faculty earning more than $25,000 per year were significantly more satisfied than faculty earning less than $25,000 per year ($F=9.81$, $p=.001$). Those faculty earning $18,000-21,999 were the least satisfied and those earning $32,000-34,999 had the highest mean satisfaction scores. A significant difference was found with salary and the pay factor. Those lowest paid faculty reported the lowest satisfaction while those reporting a higher satisfaction had higher salaries ($F=8.73$, $p=.001$) on the variables of work, people, and the job-in-general. Data is reported in Table 20.

When all of these variable were entered into a step-wise multiple regression equation, the factors of work, pay, people, and supervision were significant on the self-perceived measure of job-in-general satisfaction. The factor of work accounted for 31.5 percent of the variance with an additional 5.3 percent attributable to the factor of pay; 3.0 percent for the factor of people, and 1.8 percent for supervision. However, when individual factors were entered into the equation with the variable total factor, the sum of the variables in job satisfaction, supervision accounted for 53.7 percent of the variance in job satisfaction, followed by the factors of people (22.6 percent), promotion (11.7 percent), work (7.5 percent), and pay (4.5 percent).

When the job-in-general is considered, the equation to predict job satisfaction can be written as follows:

$$\text{Job Satisfaction} = 20.10 + .39\,(\text{work}) + .18\,(\text{pay}) + .11\,(\text{people}) + .07\,(\text{supervision}) + .08\,(\text{promotion}).$$

Job Satisfaction and Personality Types

There were no significant differences found when each of the four personality type dichotomies were compared with overall job satisfaction scores. Those that were extraverts, feeling, judging, and intuitive types reported higher levels of satisfaction. When each personality preference was entered into a step-wise

regression equation on the dependent variable, job satisfaction, the preferences of introversion, extraversion, and thinking were each significant at the .05 level. However, these variables only explained 7.7 percent of the variance.

Performance and Personality Types

There were no significant differences found when personality type dichtomies and performance scores were tested. Those faculty of the extraverted feeling, sensing, and perceiving type had overall higher performance scores. These variables only explained 4.0 percent of the variance when entered into step wise regression equation. The judging-perceiving preference was significant at the .05 level in predicting performance, with the sensing preference explaining 4.0% of the variance, followed by perceiving (2.5%) and judging (1.5%). Correlation coefficients and analysis of variance was used to determine if the more satisfied faculty were also the most productive, as evidenced by faculty evaluations. Both the job-in-general factor and the total satisfaction factors were significant in that as satisfaction increases, performance ratings also increased.

Those faculty classified as the better performers were more satisfied than those in the lower classified groups. These results were not significantly different.

Conclusions and Recommendations

It is clear that the majority of Arkansas Cooperative Extension Service faculty are sensing, thinking and judging types, and equally split between extraverts and introverts. These findings are consistent with other studies of teachers, administrators, home economics, forestry, and agriculture majors. Two possibilities exist for this. These fields are founded within the sciences, which seem to attract the types for the sensing, thinking, and judging preferences. Also the sensing, thinking, and judging types have a better chance of success and satisfaction in careers where they can run and organize activities, be practical and matter-of fact, and where problems can be analyzed with impersonal logic. The Extension Service environment provides such a opportunity.

Additionally, the variety of job responsibilities within Extension allows for the use of many preferences, such as the analysis of facts for the sensing-thinking types; teaching for the intuitive-feeling types; and management, research and engineering problems for the intuitive-thinking types.

Pay and promotion were the two least satisfying aspects of the job. One explanation may be the preference this group has for sensing. In general, sensing types favor extrinsic motivation, concrete and tangible rewards, i.e. those things perceived

and attended via the sensing preferences. Pay and promotional opportunities , which fit into this form of motivation, may always be the less satisfying to this personality type.

County faculty were the least satisfied. Since the image and support is basically founded at the county level, the factors of satisfaction should be studied more at this level.

A trend is evident that relates to turnover in Extension nationwide. It is the younger, less tenured, and lower paid agent who is expressing less satisfaction. The issue of equity, job responsibilities, expectations, status and prestige should be carefully addressed in these positions.

An analysis of sub-groups within Extension should be made regarding personality types and satisfaction.

At this point, the knowledge of personality types and performance could be used in training of extension personnel to help identify preferences that may be the root of interpersonal conflict among faculty members and lead to supervisory strategies in counseling. It should also aid in improving communication and human relations,strengthening committee work and perhaps identifying new strategies of teaching clientele.

Table 1

POSITION AND RESPONSIBILITY OF ACES FACULTY COMPLETING QUESTIONNAIRES

Position	Number Subjects	Percent Total
Field Faculty		
Agriculture	141	49.1
Home economics	93	32.4
4-H	26	9.1
CRD	9	2.8
Other	19	6.6
Total Field Faculty	199	100.0
Percent of total		69.3
County Chairperson	59	20.6
Non-County Chairperson	228	79.4
State Faculty		
Administration	5	5.7
Supervisors	6	6.8
Program Leaders	12	13.6
Specialists	65	73.9
Total State Faculty	88	100.0
Percent of Total		30.7

Table 2

AGE OF ACES FACULTY COMPLETING QUESTIONNAIRES

Age	Number	Percent
23-30	53	19.0
31-40	79	28.3
41-50	64	22.9
51-60	62	22.2
61-67	14	5.0
Missing	7	2.5
Total	279	100.0

Table 3

SEX OF ACES FACULTY COMPLETING QUESTIONNAIRES

Sex	Number	Percent
Female	117	41.9
Male	162	58.1
Total	279	100.0

Table 4

LEVEL OF EDUCATION FOR ACES FACULTY COMPLETING QUESTIONNAIRES

Degree	Number	Percent
Bachelor's degree	57	20.4
Master's degree	199	71.3
Doctoral degree	23	8.2
Total	279	100.0

Table 5

YEARS OF EMPLOYMENT OF ACES FACULTY COMPLETING QUESTIONNAIRES

Years of Employment	Number	Percent
1-5 years	61	21.9
6-10 years	58	20.8
11-15 years	41	14.7
16-20 years	27	9.7
21-25 years	30	10.8
26-30 years	37	13.3
31-38 years	19	6.8
Missing	6	2.2
Total	279	100.0

Table 6

SALARIES OF ACES FACULTY COMPLETING QUESTIONNAIRES

Salary Range	Number	Percent
Below 17,999	57	20.4
18,000-21,999	45	16.1
22,000-24,999	48	17.2
25,000-28,999	56	20.1
29,000-31,999	20	7.6
32,000-34,999	26	9.3
35,000-38,000	15	5.4
39,000 and above	12	4.3
Total	279	100.0

Table 7

DISTRIBUTION OF PERSONALITY TYPES OF ACES FACULTY
n=287

ISTJ	ISFJ	INFJ	INTJ
N=82 28.6%	N=30 10.5%	N= 1 .3%	N=12 4.2%
ISTP	**ISFP**	**INFP**	**INTP**
N=16 5.6%	N= 5 1.7%	N= 5 1.7%	N= 2 .7%
ESTP	**ESFP**	**ENFP**	**ENTP**
N=10 3.5%	N= 3 1.0%	N= 5 1.7%	N =5 1.7%
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**
N=57 19.9%	N=28 9.8%	N=11 3.8%	N=15 5.2%

	N	%
E	134	46.7
I	153	53.3
S	231	80.5
N	56	19.5
T	199	69.3
F	88	30.7
J	236	82.2
P	51	17.8
IJ	125	43.6
IP	28	9.8
EP	23	8.0
EJ	111	38.7
ST	165	57.5
SF	66	23.0
NF	22	7.7
NT	34	11.8
SJ	197	68.6
SP	34	11.8
NP	17	5.9
NJ	39	13.6
TJ	166	57.8
TP	33	11.5
FP	18	6.3
FJ	70	24.4
IN	20	7.0
EN	36	12.5
IS	133	46.3
ES	98	34.1

Table 8

TYPE DICHOTOMIES FOR TOTAL POPULATION
n=287

Type		Frequency			Percent
Extravert		134			46.7
Introverts		153			53.3
	Total	287			100.0
		X^2=1.69	DF=1	p=.19	
Sensing		231			80.5
Intuitive		56			19.5
	Total	287			100.0
		X^2=3.84	DF=1	p=.05	
Thinking		199			68.3
Feeling		88			30.7
	Total	287			100.0
		X^2=7.21	DF=1	p=.01	
Judging		236			82.2
Perceptive		51			17.8
	Total	287			100.0
		X^2=1.97	DF=1	p=.16	

Table 9

DISTRIBUTION OF ACES FACULTY BY POSITION
(n=287)

	ISTJ	ISFJ	INFJ	INTJ
Co.	N=32 26.1%	N=23 11.6%	N= 1 .5%	N= 5 2.5%
St.	N=30 10.5%	N= 7 6.0%	N= 0 0%	N= 7 6.0%

	ISTP	ISFP	INFP	INTP
Co.	N=13 6.5%	N= 5 2.5%	N= 5 2.5%	N= 1 .5%
St.	N= 3 3.4%	N= 0 0%	N= 0 0%	N= 1 1.1%

	ESTP	ESFP	ENFP	ENTP
Co.	N= 6 3.0%	N= 3 1.5%	N= 4 2.0%	N= 3 1.5%
St.	N= 4 4.5%	N= 0 0%	N= 1 1.1%	N= 2 2.2%

	ESTJ	ESFJ	ENFJ	ENTJ
Co.	N=44 22.1%	N=18 9.0%	N= 7 3.5%	N= 9 4.5%
St.	N=13 14.8%	N=10 11.4%	N= 4 4.5%	N= 6 6.8%

	County N	County %	State N	State %	χ^2 Value
E	94	47.2	40	45.5	.022,1df
I	105	52.8	48	54.5	p=.88
S	164	82.4	67	76.1	1.16,1df
N	35	17.6	21	23.9	p=.28
T	133	66.8	66	75.0	1.53,1df
F	66	33.2	22	25.0	p=.21
J	158	79.9	77	87.5	1.93,1df
P	40	20.1	11	12.5	p=.17
IJ	81	40.7	44	50.0	4.79,3df
IP	24	12.1	4	4.5	p=.19
EP	16	8.0	7	8.0	
EJ	78	39.2	33	37.5	
ST	113	57.8	50	56.8	5.71,3df
SF	49	24.6	17	19.3	p=.13
NF	17	8.5	5	5.7	
NT	18	9.0	16	18.2	
EJ	137	68.8	60	68.2	5.10,3df
EP	27	13.6	7	8.0	p=.17
IP	13	6.5	4	4.5	
IJ	22	11.1	17	19.3	
TJ	110	55.3	56	63.6	2.89,3df
TP	23	11.6	10	11.4	p=.11
FP	17	8.5	1	1.1	
FJ	49	24.6	21	23.9	
IN	12	6.0	8	9.1	1.79,3df
EN	23	11.6	13	14.8	p=.62
ES	93	46.7	40	45.5	
IS	71	35.7	27	30.7	

χ^2 = 19.78, df = 15, p = .28

Table 10

DISTRIBUTION OF PERSONALITY TYPE OF ACES BY SEX
(n=287)

Count / Row %	ISTJ	ISFJ	INFJ	INTJ
Female	N=53 32.5%	N=15 8.9%	N= 0 0%	N= 6 3.6%
Male	N=27 22.9%	N=15 12.7%	N= 1 .8%	N= 6 5.1%

	ISTP	ISFP	INFP	INTP
Female	N=11 6.5%	N= 4 2.4%	N= 3 1.8%	N= 2 1.2%
Male	N= 5 4.2%	N= 1 .8%	N= 2 1.7%	N= 0 0%

	ESTP	ESFP	ENFP	ENTP
Female	N= 8 4.7%	N= 3 1.8%	N= 1 .6%	N= 3 1.8%
Male	N= 2 1.7%	N= 0 0%	N= 4 3.4%	N= 3 1.7%

	ESTJ	ESFJ	ENFJ	ENTJ
Female	N=35 20.7%	N=12 7.1%	N= 3 1.8%	N= 8 4.7%
Male	N=22 18.6%	N=16 13.6%	N= 8 6.8%	N= 7 5.9%

	Females N	Females %	Males N	Males %	χ^2 Value
E	73	43.2	61	51.7	1.49,1df
I	96	56.8	57	48.3	p=.19
S	143	84.6	88	74.6	3.9**,1df
N	26	15.4	30	25.4	p=.05
T	128	75.7	71	60.2	7.21**,1df
F	41	24.3	47	39.8	p=.01
J	134	79.3	101	85.6	2.97,1df
P	35	20.7	17	13.6	p=.16
IJ	78	45.0	49	41.5	4.46*,3df
IP	20	11.8	8	6.8	p=.22
EP	15	8.9	8	6.8	
EJ	58	34.3	53	44.9	
ST	109	64.5	45	47.5	11.773**,
SF	34	20.1	32	27.1	3 df,p=.01
NF	7	4.1	15	12.7	
NT	19	11.2	15	12.7	
EJ	117	69.2	80	67.8	8.38*,3df
EP	26	15.4	8	6.8	p=.04
IP	9	5.3	8	6.8	
IJ	17	10.1	22	18.6	
TJ	104	61.5	62	52.6	11.848**
TP	24	14.2	9	7.6	3df,p=.01
FP	11	6.5	7	5.9	
FJ	30	17.8	40	33.9	
IN	11	6.5	9	7.6	3.923,3df
EN	15	8.9	21	17.8	p=.12
ES	83	38.3	48	40.7	
IS	58	34.3	40	33.9	

*p = .05
**p = .01

χ^2 = 22.93 df = 15 p = .09

Table 11

DISTRIBUTION OF ACES FACULTY BY EDUCATIONAL LEVELS
(n=287)

	ISTJ	ISFJ	INFJ	INTJ
B.S.	N=18 28.6%	N=10 15.9%	N= 1 1.6%	N= 1 1.6%
M.S.	N=38 20.9%	N=18 9.0%	N= 0 0%	N= 7 3.5%
Ph.D	N= 6 26.1%	N= 2 8.7%	N= 0 9%	N= 4 17.4%

	ISTP	ISFP	INFP	INTP
B.S.	N= 1 1.6%	N= 1 1.6%	N= 3 4.8%	N= 0 0%
M.S.	N=14 7.0%	N= 4 2.0%	N= 2 1.0%	N= 2 1.0%
Ph.D	N= 1 4.3%	N= 0 0%	N= 0 0%	N= 0 0%

	ESTP	ESFP	ENFP	ENTP
B.S.	N= 3 4.8%	N= 1 1.6%	N= 1 1.6%	N= 4 6.3%
M.S.	N= 6 3.0%	N= 2 1.0%	N= 4 2.0%	N= 1 .5%
Ph.D.	N= 1 4.3%	N= 0 0%	N= 0 0%	N= 0 0%

	ESTJ	ESFJ	ENFJ	ENTJ
B.S.	N= 7 11.1%	N= 8 12.7%	N= 1 1.6%	N= 3 4.8%
M.S.	N=47 23.4%	N=17 8.5%	N= 9 4.5%	N=10 5.0%
Ph.D.	N= 3 13.0%	N= 3 13.0%	N= 1 4.3%	N= 2 8.7%

	B.S.	M.S.	Ph.D.	χ^2 Value
E	28	44.4	96 47.8	10 43.5	.32,2df
I	35	55.6	105 52.2	13 56.5	p=.85
S	49	77.8	166 82.6	16 69.6	2.61,2df
N	14	22.2	35 17.4	7 30.4	p=.27
T	37	58.7	145 72.1	17 73.9	4.30,2df
F	26	41.3	45 27.9	6 26.1	p=.12
J	49	77.8	146 72.6	21 91.3	3.17, 2df
P	14	22.2	35 17.4	2 8.7	p=.13
IJ	30	47.6	83 41.3	12 52.2	7.60,6df
IP	5	7.9	22 10.9	1 4.3	p=.26
EP	9	14.3	13 6.5	1 4.3	
EJ	19	30.2	83 41.3	9 39.1	
ST	29	46.0	123 61.2	11 47.8	12.30,6df
SF	20	31.7	41 20.4	5 21.7	p=.11
NF	6	9.5	15 7.5	1 4.3	
NT	8	12.7	22 10.9	6 26.1	
EJ	43	68.3	148 69.7	14 609.	13.50*
EP	6	9.5	26 12.9	2 .87	6df
IP	8	12.7	9 4.5	0 0,9	p=.03
IJ	6	9.5	26 12.9	7 30.4	
TJ	29	46.9	122 60.7	13 65.2	6.73,6df
TP	8	12.7	23 11.4	2 8.7	p=.35
FP	6	9.5	12 6.0	0 0.0	
FJ	20	31.7	44 21.9	6 26.1	
IN	5	7.9	11 5.5	4 17.4	5.37,6df
EN	9	14.3	24 11.9	3 13.0	p=.50
IS	30	47.6	94 46.8	9 39.1	
ES	19	30.2	72 35.8	7 30.4	

*p = .05

χ^2 = 43.24, 30df, p = .05

Table 12

DISTRIBUTION OF TYPE OF ACES FACULTY BY SUBJECT MATTER
(n=287)

	ISTJ	ISFJ	INFJ	INTJ
Ag	N=53 35.6%	N=14 9.5%	N= 0 0%	N= 2 1.3%
4-H	N= 9 34.6%	N= 2 7.7%	N= 0 0%	N= 1 3.8%
HE	N=18 19.4%	N=12 12.9%	N= 1 1.1%	N= 6 6.5%

	ISTP	ISFP	INFP	INTP
Ag	N=10 6.7%	N= 4 2.7%	N= 2 1.3%	N= 2 1.3%
4-H	N= 1 3.8%	N= 0 0%	N= 1 3.8%	N= 1 3.8%
HE	N= 4 4.3%	N= 1 1.1%	N= 2 2.2%	N= 0 0%

	ESTP	ESFP	ENFP	ENTP
Ag	N= 8 5.4%	N= 3 2.0%	N= 1 .7%	N= 3 2.0%
4-H	N= 0 0%	N= 0 0%	N= 0 0%	N= 0 0%
HE	N= 2 2.2%	N= 0 0%	N= 3 3.2%	N= 1 1.1%

	ESTJ	ESFJ	ENFJ	ENTJ
Ag	N=29 19.3%	N= 9 6.0%	N= 2 1.3%	N= 7 4.7%
4-H	N= 6 23.1%	N= 3 11.5%	N= 2 7.7%	N= 1 3.8%
HE	N=19 20.4%	N=13 14.0%	N= 3 3.4)	N= 6 6.5%

	Agric.	4-H	Homec.	χ^2 Value
E	64	44.8	12 46.2	49 52.7	2.83,2df
I	87	56.4	14 53.8	44 47.3	p=.24
S	130	87.2	21 80.8	69 74.2	6.67*,2
N	19	12.8	5 19.2	24 25.8	p=.03
T	114	76.5	18 69.2	56 60.2	7.27*,2
F	35	23.5	8 30.8	37 39.8	p=.02
J	116	77.9	24 92.3	80 86.0	4.44,2d
P	33	22.1	2 7.7	13 14.0	p=.09
IJ	69	46.3	12 46.2	37 39.8	8.88,2d
IP	18	12.1	2 7.7	7 7.5	p=.18
EP	15	10.1	0 0	6 6.5	
EJ	47	31.5	12 46.2	43 46.2	
ST	100	67.1	18 61.3	43 46.2	13.95*
SF	30	20.1	3 19.2	26 28.0	6df
NF	5	3.4	3 11.5	11 11.8	p=.03
NT	14	9.4	2 7.7	13 14.0	
EJ	105	70.5	30 76.9	62 66.7	13.15*
EP	25	16.8	1 3.8	7 7.5	6df
IP	8	5.4	1 3.8	6 6.5	p=.04
IJ	11	7.4	4 15.4	18 19.4	
TJ	91	61.1	17 65.4	49 52.7	12.65*
TP	23	15.4	1 3.8	7 7.5	6df
FP	10	6.7	1 3.8	6 6.5	p=.04
FJ	25	16.8	7 26.9	31 33.3	
IN	6	4.0	2 7.7	9 9.7	9.76,6
EN	13	8.7	3 11.5	15 16.1	p=.14
IS	81	54.4	12 46.2	35 37.6	
ES	49	32.9	9 34.6	34 36.6	

*p = .05

χ^2 = 34.34, 30 df, p = .25

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Table 13

DISTRIBUTION OF ACES FACULTY BY ADMINISTRATIVE RESPONSIBILITY
(n=287)

	ISTJ	ISFJ	INFJ	INTJ
Adm	n= 3 13.0%	n= 2 8.7%	n= 0 0%	n= 3 13.0%
Spec	n=27 41.5%	n= 5 7.7%	n= 0 0%	n= 4 6.2%
FT	n=52 26.1%	n=23 11.6%	n= 1 .5%	n= 5 2.5%

	ISTP	ISFP	INFP	INTP
Adm	n= 0 0%	n= 0 0%	n= 0 0%	n= 0 0%
Spec	n= 3 4.6%	n= 0 0%	n= 0 0%	n= 1 1.5%
FT	n=13 6.5%	n= 5 2.5%	n= 5 2.5%	n= 1 .5%

	ESTP	ESFP	ENFP	ENTP
Adm	n= 0 0%	n= 0 0%	n= 0 0%	n= 0 0%
Spec	n= 4 6.2%	n= 0 0%	n= 1 1.5%	n= 2 3.1%
FT	n= 6 3.0%	n= 3 1.5%	n= 4 2.0%	n= 3 1.5%

	ESTJ	ESFJ	ENFJ	ENTJ
Adm	n= 6 26.1%	n= 3 13.0%	n= 2 8.7%	n= 4 17.4%
Spec	n= 7 10.8%	n= 7 10.8%	n= 2 3.1%	n= 2 3.1%
FT	n=44 22.1%	n=18 9.0%	n= 7 3.5%	n= 9 4.5%

χ^2 = 4.96, 3 df, p = .08

	Admin.	Spec.	Field	χ^2 Value
E	13 65.2	23 38.5	94 47.2	6.93,2df
I	8 34.8	40 61.5	105 52.8	p=.03
S	14 60.9	33 61.5	164 82.4	6.15*,2df
N	9 39.1	12 18.5	35 17.6	p=.04
T	16 69.6	50 76.9	133 66.8	2.35,2df
F	7 30.4	15 23.1	66 33.2	p=.31
J	23 100.0	54 83.1	159 79.9	5.74*,2df
P	0 0	11 16.9	40 20.1	p=.05
IJ	8 34.8	36 55.4	81 40.7	15.73**
IP	0 0	4 6.2	24 12.1	6df
EP	0 0	7 10.8	16 8.0	p=.01
EJ	15 65.2	18 27.7	78 39.2	
ST	9 39.1	41 63.1	113 57.8	11.80,6df
SF	5 21.7	12 18.5	49 24.6	p=.06
NF	2 8.7	3 4.6	17 8.5	
NT	7 30.4	9 13.8	18 9.0	
SJ	14 60.9	44 72.8	137 68.8	17.09**
SP	0 0	7 10.8	27 13.5	6df
NP	0 0	4 6.2	13 6.5	p=.01
NJ	9 39.1	8 12.3	22 11.1	
TJ	16 69.6	48 61.5	110 55.3	10.39,6df
TP	0 0	10 15.4	23 11.6	p=.11
FP	0 0	1 1.5	17 8.5	
FJ	7 30.4	14 21.5	49 24.6	
TE	3 13.0	5 7.7	12 6.0	10.10,6df
EN	6 26.1	7 10.8	23 11.6	p=.12
IS	5 21.7	35 53.8	93 46.7	
ES	9 39.1	18 27.7	71 35.7	

*p = .05
**p = .01

Table 14

ANALYSIS OF VARIANCE OF JOB SATISFACTION FACTORS BY
POSITION LOCATION OF ACES FACULTY

Factor	Level	N	Mean	S.D.	F-ratio
Supervision	County	189	42.55	11.15	4.39**
	Area	11	32.09	14.75	
	District	18	47.39	6.54	
	State	61	41.56	11.79	
People	County	189	43.38	9.82	1.28
	Area	11	44.73	11.02	
	District	18	47.78	8.14	
	State	61	44.92	11.03	
Pay	County	189	12.30	6.47	11.17***
	Area	11	12.37	6.14	
	District	18	18.00	5.54	
	State	61	16.67	5.20	
Promotion	County	189	11.91	6.45	7.61***
	Area	11	4.27	4.76	
	District	18	12.67	8.51	
	State	61	7.33	7.24	
Work	County	189	39.22	7.47	4.54***
	Area	11	41.64	6.77	
	District	18	43.00	6.29	
	State	61	42.59	6.23	
Job-In-General	County	189	46.04	7.32	3.97**
	Area	11	50.09	5.68	
	District	18	49.72	4.97	
	State	61	48.48	5.49	

**p = .01
***p = .001

Table 15

ANALYSIS OF VARIANCE OF JOB SATISFACTION FACTORS BY SUBJECT MATTER AREAS OF ACES FACULTY (n=279)

Factor	Subject Matter	N	Mean	S.D.	F-ratio
Supervision	Agric.	137	42.64	11.28	.55
	CRD	8	46.13	8.06	
	4-H	24	42.46	14.05	
	Home Ec.	91	41.04	11.74	
	Other	19	43.11	8.48	
People	Agric.	137	44.58	10.05	.76
	CRD	9	41.12	13.82	
	4-H	24	44.38	9.11	
	Home Ec.	91	42.97	9.82	
	Other	19	46.26	11.00	
Pay	Agric.	137	12.38	6.77	4.05*
	CRD	8	14.25	5.95	
	4-H	24	13.13	6.40	
	Home Ec.	91	14.74	9.82	
	Other	19	17.68	11.00	
Promotion	Agric.	137	11.75	8.79	1.41
	CRD	8	8.50	9.86	
	4-H	24	9.38	7.37	
	Home Ec.	91	10.05	8.11	
	Other	19	8.16	6.50	
Work	Agric.	137	40.65	7.70	.81
	CRD	8	43.13	7.83	
	4-H	24	40.50	8.00	
	Home Ec.	91	39.34	6.46	
	Other	19	40.84	6.62	
Job-In-General	Agric.	137	47.54	6.31	1.40
	CRD	8	47.75	5.28	
	4-H	24	45.21	8.12	
	Home Ec.	91	46.10	7.61	
	Other	19	48.90	5.65	

p = .01

Table 16

ANALYSIS OF VARIANCE OF JOB SATISFACTION FACTORS BY AGE GROUPS OF ACES FACULTY (n=272)

Factor	Age Groups	N	Mean	S.D.	F-Ratio
Supervision	23-30	53	43.43	10.65	.95
	31-40	79	41.24	11.60	
	41-50	64	42.45	10.80	
	51-60	62	43.24	11.88	
	61-67	14	37.71	15.54	
People	23-30	53	43.45	8.45	5.60***
	31-40	79	40.08	12.03	
	41-50	64	45.80	9.83	
	51-60	62	47.15	7.28	
	61-67	14	46.43	9.33	
Pay	23-30	53	11.85	6.51	5.53***
	31-40	79	12.01	6.42	
	41-50	64	14.33	5.69	
	51-60	62	16.27	5.85	
	61-67	14	15.00	8.32	
Work	23-30	53	38.49	7.63	3.18**
	31-40	79	39.15	7.15	
	41-50	64	41.39	7.80	
	51-60	62	41.90	5.78	
	61-67	14	43.29	5.80	
Promotion	23-30	53	13.85	7.83	2.49*
	31-40	79	9.75	7.87	
	41-50	64	9.95	8.75	
	51-60	62	9.85	8.23	
	61-67	14	9.71	10.47	
Job-In-General	23-30	53	43.96	8.48	5.24***
	31-40	79	46.24	7.16	
	41-50	64	49.17	4.99	
	51-60	62	48.26	5.69	
	61-67	14	47.07	6.94	

*p = .05, **p = .01, ***p = .001.

Table 17

ANALYSIS OF VARIANCE OF JOB SATISFACTION FACTORS
BY SEX OF ACES FACULTY (n=279)

Factor	Sex	N	Mean	S.D.	F-ratio
Supervision	Female	117	41.74	11.62	.37
	Male	162	42.59	11.31	
People	Female	117	43.93	9.28	.04
	Male	162	44.14	6.72	
Pay	Female	117	14.53	5.95	4.95*
	Male	162	12.99	7.70	
Work	Female	117	39.93	6.62	.60
	Male	162	40.38	7.70	
Promotion	Female	117	10.00	7.77	1.21
	Male	162	11.12	8.78	
Job-In-General	Female	117	46.34	7.47	1.67
	Male	162	47.42	6.41	

p = .05

Table 18

ANALYSIS OF VARIANCE OF JOB SATISFACTION FACTORS
BY EDUCATIONAL LEVELS (n=279)

Factor	Educational Level	N	Mean	S.D.	F-ratio
Supervision	Bachelors	57	42.02	11.83	.021
	Masters	199	42.32	11.38	
	Doctorate	23	42.00	11.21	
People	Bachelors	57	43.58	9.82	1.734
	Masters	199	43.72	10.17	
	Doctorate	23	47.78	9.37	
Pay	Bachelors	57	13.42	6.33	5.03**
	Masters	199	13.22	6.42	
	Doctorate	23	17.65	5.98	
Work	Bachelors	57	39.30	7.92	1.28
	Masters	199	40.37	7.11	
	Docrorate	23	42.13	6.76	
Promotion	Bachelors	57	11.18	7.94	.491
	Masters	199	10.68	8.46	
	Docrorate	23	9.13	8.89	
Job-In-General	Bachelors	57	45.30	7.76	2.29
	Masters	199	47.31	6.53	
	Doctorate	23	48.17	7.15	

**p = .01

Table 19

ANALYSIS OF VARIANCE OF JOB SATISFACTION FACTORS BY LEVEL OF TENURE
(n=273)

Tenure in Yrs.	N	Supervision Mean	S.D.	Pay Mean	S.D.	Work Mean	S.D.	People Mean	S.D.	Promotion Mean	S.D.	Job-in-General Mean	S.D.
1- 5	61	42.78	11.76	12.39	6.38	39.44	7.03	44.54	9.40	13.20	7.93	44.34	8.25
6-10	58	42.58	10.42	11.08	6.09	38.26	6.92	40.34	11.19	9.69	7.78	45.60	7.82
11-15	41	42.02	11.39	14.39	5.51	40.66	7.54	43.61	10.28	11.68	9.33	48.51	5.03
16-20	27	41.62	12.17	14.33	6.92	42.26	5.19	46.81	10.20	8.52	7.70	47.56	5.98
21-25	30	42.83	11.19	16.37	6.30	40.60	7.88	45.17	9.22	12.50	9.61	48.87	5.25
26-30	37	42.43	12.42	16.00	6.34	43.97	6.49	47.97	8.26	8.54	7.91	49.54	3.78
31-38	19	40.32	12.81	17.58	5.39	39.79	6.37	49.00	6.05	8.79	8.02	49.00	5.63
		F=.147		F=4.49* p = .01		F=3.11* p = .01		F=3.94*** p = .001		F=2.287* p = .05		F=4.139*** p = .001	

Table 20

ANALYSIS OF VARIANCE OF JOB SATISFACTION FACTORS BY SALARY LEVELS OF ACES FACULTY
(n=279)

Salary Levels	N	Supervision Mean	S.D.	Pay Mean	S.D.	Work Mean	S.D.	People Mean	S.D.	Promotion Mean	S.D.	Job-in-General Mean	S.D.
LO-17999	57	41.65	11.62	10.61	7.23	39.79	7.60	43.96	8.31	12.75	8.10	43.81	7.65
18000-21999	45	42.18	11.57	11.20	5.66	37.96	7.54	40.93	10.02	10.18	8.08	44.27	8.80
22000-24999	48	42.45	11.20	12.68	6.09	40.31	6.17	42.56	11.19	9.42	8.37	47.52	6.33
25000-28999	48	41.64	12.22	14.64	4.98	40.92	6.22	43.78	11.25	10.50	8.44	49.09	4.87
29000-31999	20	41.25	11.46	14.70	5.89	42.50	9.25	44.50	7.90	8.35	6.85	48.40	5.85
32000-34999	26	43.23	11.48	17.31	5.57	43.00	6.75	48.69	7.68	12.04	11.04	50.15	3.66
35000-38999	15	43.67	10.73	18.53	5.54	41.93	8.63	44.87	13.02	9.67	7.79	48.27	5.95
39000-HI	12	44.75	10.10	20.17	3.76	41.58	6.42	51.58	4.01	10.25	6.34	49.08	4.87
		F=.87		F=8.73*** p = .001		F=2.07		F=2.65* p = .01		F=1.04		F=5.16*** p = .001	

Research Paper Critique

THE RELATIONSHIP OF PERSONALITY TYPES OF ARKANSAS COOPERATIVE EXTENSION SERVICE FACULTY TO JOB SATISFACTION

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This study dealt with the Relationship of Personality Types of Arkansas Cooperative Extension Service Faculty to Job Satisfaction and Performance. She had some nice slides and visuals. This is a commendable and interesting topic to address. Personnel procurement is an important matter.

You mentioned in your report that in some cases the turnover rate is 100%. This is a very expensive thing to occur as well as very damaging in an organization in trying to achieve its mission. So, matching talent, characteristics of individuals to jobs is an important matter to investigate. We have to also realize this matching may not be quite so easy, if we look at affirmative action programs, court orders and the other kinds of things that especially impact us in the South that may not be impacting some of the other parts of the nation.

You attempted to establish a good theoretical base using career theorist, looking at organizations and individuals, personality types and so forth in the process. In the materials I received you stated the objectives and the purpose of your study. They appear to be stated satisfactorily. The procedures and methodologies involved were ex post facto design. You used two primary instruments, MBTI and the Cornell Job Descriptive Index. The MBTI has been used quite a bit in recent years. I think the University of Nebraska has administered this instrument to anyone who will stand still and let it be given to them. I hope it is a good instrument.

You indicated that you had found that Arkansas Cooperative Extension Service people were not like the others so I wonder what that says about the personality theories and so forth that

serve as a theoretical undergirding for this as well as the reliability on the instruments. I didn't see any effort in your Arkansas study to establish reliability with your respondents here. So, I do hope that the Myers-Briggs Type inventory is certainly worthy and is doing some good. The Cornell Job Descriptive Index was new to me, probably not to the rest of you. You reported the reliability on it but still I wonder if we need the reliability measured here for Arkansas rather than the overall reliability that was reported. Statistics of chi-square analysis, analysis of variance and multiple regression were used.

Let's talk about findings just a little bit. You had an eighty percent response rate, I believe. I don't recall any mention of how non-respondents might have been handled in this process. One of the paragraphs out of this information overload I want to read dealt with the profile and I guess this is a negative criticism. I am not sure in our research we even need to draw up profiles like this. "The person most often described in this study of Arkansas Cooperative Extension Service faculties is male, agricultural agent, employed on the field faculty." I am not sure these home economists, who in most cases are female, would like to be described as typically male. In addition, "he has a Masters Degree and earns $24,206.42 a year". I'm not sure that kind of profile is accurate or very meaningful to us when we are looking at personnel.

Under conclusions and recommendations, one of the theories I want to talk about was performance appraisal. Job performance is mentioned here but I do not understand where the scores came from, how we got them, what kind of instruments were used in this performance appraisal process. Especially as relating to objective four.

On the recommendations, the big question that occurred to me is, "How is this study going to help the Arkansas Cooperative Extension Service?" There are nine recommendations as I see them. Every recommendation deals with the need for additional research. My question is, With this research, what will be the consequences for the Arkansas Cooperative Extension Service? Another point might be, with all of the action occurring with the Gramm-Rudman, Hollings, What are the implications for reduction in force, termination in other words, merit pay and these kinds of things. These are just a few comments that I wanted to make on this particular study. I appreciate Dr. Graham presenting this study to us. It's obvious that she has given quite a bit of attention and quite a bit of work to it.

RELATIONSHIP BETWEEN URBANIZATION AND SUPERVISED OCCUPATIONAL EXPERIENCE PROGRAMS IN FLORIDA

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RELATIONSHIP BETWEEN URBANIZATION AND SUPERVISED OCCUPATIONAL EXPERIENCE IN VOCATIONAL AGRICULTURE PROGRAMS IN FLORIDA

Historically, when vocational agriculture programs were initially conceived, they were associated strictly with farming and rural students. In recent years, the subject area of vocational agriculture has been expanded to encompass agricultural topics which are not directly related to farming. More and more, vocational agriculture instruction includes such topics as horticulture, processing of agricultural products, forestry and natural resources, and agricultural supplies and services. Due partially to this broadened emphasis within the vocational agriculture curriculum, as well as to the general urbanizing trend which our society is undergoing, the "average" vocational student is increasingly likely to be of non-farm origin.

A supervised occupational experience program (SOEP) is widely regarded by agricultural educators as an essential component of each student's instruction in vocational agriculture. The increasingly urban orientation of today's students is considered by many vocational agriculture teachers as an additional factor retarding efforts to provide a quality SOEP opportunity to every student.

Several studies indicate that factors related to urbanizing trends do have an effect upon the quality of SOE programs and upon student participation in them. The 1976 study carried out in Virginia by McMillion and Auville showed a positive correlation between the scope of student vocational agriculture "farming programs" and the size of the student's home farm. The percent of income derived by the student's family from the home farm was also seen to be related to the student's SOE program scope. However, their study indicated no relationship between the "student's general area of residency" (city, town, rural) and the scope of the student SOE programs.

In Arizona, Zurbrick (1982) and the scope of their SOE program. Urban students tended to have SOEs that were smaller in scope than did rural students. He also found student participation in a school SOE program to be higher in schools located in urban settings than in either rural or reservation schools. However, the scope value for school SOE programs was essentially the same for schools across all three locations.

Long and Dunham (1982) found in Utah that student participation in an SOE program was related to the population of the student's home area. Only 60.4 percent of the urban students participated in supervised occupational experience programs while 83.9 percent of the rural students had some type of SOE project. These studies tend to support the idea that factors related to present urbanizing trends, such as increased population, decreas-

ed size of residential holdings, and decreased family dependence upon agricultural sources of income also appear to affect the quality of a school SOE program and student participation in it.

The State of Florida is one of the fastest growing states in terms of population in the nation. From the 33rd largest state at the turn of the century, rapid population growth has catapulted Florida to the position of seventh largest by the early 1980's (State of Florida, Executive Office of the Governor, 1984, p. 37). Urbanization in Florida is an important issue receiving much attention in the news media and much discussion by public officials responsible for planning services. This urbanizing trend is being felt even in the secondary school vocational agriculture classroom. Arrington (1981) reported that over 56% of the teachers in Florida reported that less than one-half of their students were from a rural area. Arrington and Price (1983) found that two-thirds of vocational agriculture students in Florida resided on less than five acres of land.

As programs become more and more urban, responsible educators must raise questions about the appropriateness and effectiveness of traditional teaching approaches used in vocational agriculture. Is the traditional supervised occupational component of vocational agriculture instruction as appropriate for urban students as it is for rural students? Are teachers able to provide quality SOE programs in urban situations given the additional constraints which they face?

PURPOSE OF THIS STUDY

The central purpose of this study is to determine the effect of growing urbanization in Florida upon the SOE component of the secondary school vocational agriculture programs in the state. A secondary purpose is to identify and describe ways and means of adapting traditional SOE programs to the changes brought about by this transition from a rural to an urbanized environment. More specifically, the objectives of this study were:

1. To describe the following demographic characteristics of the selected vocational agriculture programs:

   - type of program
   - portion of students residing in rural areas
   - portion of students final grade that depends on SOEP
   - SOE class instructional time
   - frequency of SOE supervisory home visits
   - portion of students with written SOE plans
   - length of teachers instructional experience
   - number of years teachers had vo. ag. in high school
   - teacher part-time employment

2. To determine if there is an association between degree of urbanization and supervised occupational experience program scope in Florida vocational agriculture programs.

3. To determine if there is an association between degree of urbanization and student participation in supervised occupational experience programs in Florida.

4. To determine the problems related to urbanization which teachers perceive as affecting the supervised occupational experience programs of vocational agriculture students.

5. To determine what techniques and program modifications are in use in Florida vocational agriculture departments which teachers perceive to enhance their SOE program.

6. To identify techniques and procedures which teachers are using to encourage SOE participation among urban students and/or in urban settings.

RESEARCH PROCEDURE

The population of interest in this study consisted of senior high school vocational agriculture teachers in Florida and their 11th grade students. Using the Florida Agribusiness And Natural Resources Education Personnel Directory for 1984-1985, 288 senior high school vocational agriculture teachers were identified. A random sample of 164 of those teachers was extracted for this study.

Two questionnaires were used to collect data. The first questionnaire, soliciting information on personal and program characteristics, was sent directly to the selected teachers for completion. Information about the following teacher and program variables was solicited;

- type of program
- portion of students residing in rural areas
- portion of the students final grade that depends on SOEP
- SOE class instructional time
- frequency of SOE supervisory home visits
- portion of students with written SOE plans
- length of teachers instructional experience
- years the teacher had vo. ag. in high school
- teacher part-time employment

Student questionnaires were also sent to the vocational agriculture teachers to administer to their 11th grade students. Information about each students place of residence and SOE program was gathered in this manner. A five question index of

urbanization, the main independent variable in this study, was devised based on a review of previous studies. Field testing of the index was undertaken with 56 college students yielded a reliability coefficient (Crombach Alpha) of .83.

Descriptive and quantitative information concerning each students SOE program was obtained using a format adapted from that utilized by Arrington (1981). The scope value for each student's SOE program, one dependent variable in this study, was calculated using the following equation adapted by Arrington (1981) from a 1978 study by Morton.

$$\text{Scope} = \frac{\text{Income 1984}}{100} + \frac{\text{PMWU 1984}}{5}$$

Income 1984 is equal to student supervised occupational experience program labor and management income during 1984, and PMWU 1984 is equal to SOE productive work man units during 1984.

PMWU's were calculated for student SOE programs using a slightly modified version of the PMWU values recommended by Starling (1978). All student supervised occupational experience program scores for each individual teacher's program were averaged to determine a mean score for that program. Students without supervised occupational experience programs were given a score of zero.

Participation in SOE, the second dependent variable, was defined for the purposes of this study as the percent of 11th graders with SOEP. Participation was calculated on the basis of individual student responses, and an overall percent participation was then determined for each teacher's program. Students not responding were considered to be nonparticipants in the SOE program.

The survey instruments were mailed on March 28, 1985 to all 164 teachers (and their students). The initial mailing was followed up by a letter to non-respondents after two weeks. A second follow-up letter was sent with duplicate copies of the questionnaires four weeks after the original mailing. Eighty-nine (54.3%) survey instruments were returned, but only 77 (47.0%) were properly completed by teachers having 11th grade students. A total of 874 11th grade students of the respondent teachers completed and returned their questionnaires.

During a three week period beginning seven weeks after the original mailing, telephone contacts were made with 13 (17.3%) of the teacher nonrespondents, who were asked to answer two descriptive questions concerning their program type and their years of experience teaching vocational agriculture. An apparent difference between respondents and nonrespondents concerned the

type of vocational agricultural program conducted. More non-respondents tended to have agricultural mechanics programs (23.1%) than respondents (5.2%) and fewer nonrespondents were found to conduct agricultural production programs (38.5%) than respondents (53.2%).

Data for each variable were analyzed using frequencies and percentages to describe the respondents. Chi square was used to determine if there was an association between urbanization and the two dependent variables, SOE scope and SOE participation, at the program level. When differences among groups were significant, Cramer's V (correlation coefficient) was employed to describe the strength of the relationship.

PRESENTATION AND INTERPRETATION OF DATA

Objective One

Objective one was to describe the demographic characteristics of teachers and their programs. Over one-half (53.3%) of the programs surveyed were production agriculture. Ornamental horticulture accounted for the second largest group of programs (23.4%). The typical teacher was employed for 12 months, had been enrolled in high school vocational agriculture, and did not have a part-time job.

Each teacher was asked to indicate the number of 11th grade students with a written SOE plan in his/her program. Table 1 reveals that the largest group of teachers (32.5%) indicated that 25% or less of their students had written SOE plans. Only 15.6% indicated that all of their 11th graders had a written plan.

TABLE 1

Percentage of 11th Graders in Vocational Agriculture Programs SOEPs (n=77)

Percent of 11th Graders with Planned SOEP	Frequency	Percent	Cumulative Percent
Non-response	1	1.3	1.3
0-25%	25	32.4	33.8
26-50%	12	15.6	49.4
51-75%	13	16.9	66.2
76-99%	14	18.2	84.4
100%	12	15.6	100.0

Teachers were also asked to indicate what percentage of the student grade in vocational agriculture class is derived from SOE. Table 2 reveals that approximately two-thirds of the teachers count SOE activities as part of the student grade. There were 26 teachers (33.8%) that did not include SOE as a part of the student's grade for vocational agriculture.

TABLE 2

Percentage of 11th Graders in Vocational Agriculture Programs With Planned SOEPs (n=77)

Percent of 11th Graders With Planned SOEP	Frequency	Percent	Cumulative Percent
Non-Response	2	2.6	2.6
0%	26	33.7	36.4
1-5%	9	11.8	48.1
6-10%	8	10.4	58.4
11-15%	7	9.1	67.5
16-20%	13	16.9	84.6
21-25%	4	5.2	89.6
More than 25%	8	10.4	100.0

Concerning in-class attention to SOEP, most teachers responding indicated that they spend less than ten hours per year teaching SOE principles and topics to their 11th grade students. Over one-third of the teachers (36.4%) spent five hours or less teaching SOE at the 11th grade level. Table 3 summaries the responses to this question.

TABLE 3

Teacher SOEP Supervisory Visits (n=77)

Visits per Student Per Year	Frequency	Percent	Cumulative Percent
Non-Response	2	2.6	2.6
None	15	19.5	22.1
One	24	31.1	53.2
Two	18	23.4	76.6
Three	3	3.9	80.4
Four or More	15	19.5	100.0

Almost half (45.5%) of the teachers surveyed indicated that 25% or less of their students resided in rural areas. Only 18.2% of the teachers indicated that over three-fourths of their students were from rural areas.

TABLE 5

Percentage of Students Residing in Rural Areas
(n=77)

Percent of Rural Students (Per Vo-Ag Program)	Number	Percent	Cumulative Percent
Non-Response	1	1.3	1.3
0-25%	35	45.4	46.8
26-50%	11	14.3	61.0
51-75%	16	20.8	81.8
76-100%	14	18.2	100.0

Objective Two

Objective two was designed to determine if an association exists between degree of urbanization and SOE scope. The data in Table 6 indicate that there is an association between the degree to which students resided in an urban area and the scope of their SOE program. Scope scores tended to be higher for students who were from rural settings. The Cramers V (correlation coefficient) was calculated to be .17.

TABLE 6

Degree of Urbanization and Scope of SOE Programs
(n=801)

	Degree of Urbanization							
	Rural					Urban		
SOE Scope (By Student)	0-5		6-10		11-15		16-20	
	N	%	N	%	N	%	N	%
0	72	39.8	127	56.2	182	67.*	92	73.6
1 - 10	34	18.8	48	21.2	41	15.3	19	15.2
11 - 25	34	18.8	26	11.5	29	10.8	5	4.0
26 - 50	28	15.5	15	6.6	12	4.2	6	4.8
51 - 75	13	7.2	10	4.4	5	1.9	3	2.4
Total	181	100.0	226	100.0	269	100.0	125	100.0

Note. Chi Square = 65.465, P < .001, Cramer's V = .17

Objective Three

Objective three was to determine if there was an association between degree of urbanization and student participation in supervised occupational experience programs. Degree of participation was determined by calculating the percentage of each teacher's students who had an SOE program. To analyze this

objective, urbanization scores were calculated for each teacher's students. The urbanization score for each teacher's program was derived by determining the mean of the student urbanization scores for that program. For purposes of this analysis, programs with urbanization scores of 0-10 were considered rural and programs with scores ranging from 11-20 were considered to be urban.

The data in Table 7 reveal that no association was found between student participation in SOE and the degree of urbanization. Students were just as likely to have an SOE if they were from and urban area as were those from a rural area.

TABLE 7

Degree of Urbanization and Percentage Participation in SOEP (n=62)

Percent Participation (By Program)	Degree of Urbanization			
	Rural		Urban	
	N	%	N	%
0 - 25	16	45.7	13	48.1
26 - 50	12	34.3	7	25.9
51 - 75	3	8.6	2	7.4
> 75	4	11.4	5	18.6
Total	35	100.0	27	100.0

Note: Chi Square = 1.94, P > .05

Objective Four

Objective four was to determine problems teachers have in providing SOE programs for their students. Based upon a review of literature, a list of 21 common problems was compiled and included on the questionnaire. Each teacher was asked to rate the degree to which each item has been a problem. A four-point Likert type scale, that included the following responses: (1) always a problem, (2) often a problem, (3) seldom a problem, and (4) never a problem, was utilized.

Mean responses were calculated for each item. The three problems that were ranked highest by teachers were "limited land and facilities available at home" (2.0), "students have non-agricultural career goals" (2.2), and "students have limited transportation (2.2). Of the 21 problems identified, the three that teachers felt were the least problem were "teacher has a lack of experience in agriculture outside of education" (3.3), "teacher has inadequate training in SOE" (3.2), and "lack of administrative support for SOE" (3.2). A complete summary of responses to this question is presented in Table 8.

TABLE 8

Problems in Providing SOE Programs Identified by Vocational Agriculture Teachers
(n=77)

SOE FACTORS WHICH MAY BE PROBLEMS	MEAN RESPONSE**	
Limited land and facilities available at home	2.0	
Students have non-agriculture career goals	2.2	
Students have limited transportation	2.2	(MOST PROBLEM)
Students have limited agricultural background	2.3	:
Student motivation and enthusiasm is low	2.3	:
Students already have a non-agricultural job	2.3	:
Students have limited agricultural resources	2.3	:
Parental assistance with SOE is low	2.4	:
School time granted for SOE supervision is insufficient	2.4	:
Limited opportunity for student SOE placement	2.5	:
Teacher lacks time for SOE program	2.5	:
Students enrolled in vocational agriculture to avoid other courses	2.7	:
Zoning restrictions exclude some types of SOE projects	2.8	:
Too many students per teacher	2.8	:
Land lab facilities and equipment are inadequate	2.8	:
Insufficient travel money for SOE supervision	3.0	:
Vocational Agriculture summer program reduced	3.0	:
Poor community support	3.1	:
Lack of administrative support for SOE	3.2	:
Teacher has inadequate training in SOE	3.2	(LEAST PROBLEM)
Teacher has lack of experience in agriculture outside of education	3.3	

Scale: 1)always a problem, 2) often a problem, 3) seldom a problem, 4) never a problem

Objective Five

The intent of objective five was to determine what practices teachers use to enhance the quality of their SOE program, and to determine their perception of the successfulness of each technique which they have utilized. A review of literature and informal interviews with several teachers and vocational directors led to a list of 26 techniques which might be used to improve SOE programs. Teachers were asked to rate the degree which they have utilized each technique and the degree of success that resulted on a four point Likert scale.

The five techniques which vocational agriculture teachers indicate they utilize most frequently, and with most success, are "emphasizing record-keeping during class", "teaching students the benefits of SOE", "using SOE projects for advancement in FFA", "individual student ownership on land lab", and "grading all SOE projects". At the other extreme, three practices which teachers

tended to utilize less frequently, and with least success, are "partnership projects between a student with access to resources and a student without resources", "land rental by students without
land available", and livestock chains". Table 9 shows the mean responses of the 77 teacher respondents concerning their degree of utilization and success with each practice.

TABLE 9

Degree of Utilization and Degree of Success for Techniques Used to Enhance SOE Programs
(n=77)

TECHNIQUES FOR ENHANCING SOE PROGRAMS	MEAN RESPONSE** Utilization		Success
Emphasizing record keeping during class	1.7		1.8
Teaching students the benefits of SOE	1.7		1.9
Using SOE projects for advancement in FFA	1.7	(MOST)	1.8
Individual student ownership on land lab	1.9	:	2.0
Grading all SOE projects	1.9	:	2.0
Requiring SOE for all students	2.1	:	2.3
Emphasizing SOE at a parent-member banquet	2.1	:	2.0
Student placement	2.2	:	2.0
Using written training agreements between student, teacher, parent, and employer	2.2	:	2.2
Using student to help promote the SOE program	2.3	:	2.2
Home improvement projects	2.3	:	2.2
Increasing instructor SOE home visits	2.4	:	2.3
Showing slides or photographs of students and their SOE projects	2.5	:	2.2
Soliciting input from the advisory committee	2.5	:	2.4
Supplementary skill development projects	2.5	:	2.3
Individual student placement on land lab	2.5	:	2.1
Using telephone calls to supplement home visits	2.6	:	2.3
Volunteer work or community benefit projects	2.8	:	2.5
Group student ownership on land lab	3.0	:	2.7
Cooperative placement during school hours	3.0	:	2.6
Addressing community groups, school board, and local clubs to increase understanding of SOE	3.1	:	2.8
Promoting sponsorship of SOE projects by local business and organizations	3.1	:	2.9
Bank loans for students with limited capital	3.2	:	2.8
Partnership projects between a student with access to resources and a student without resources	3.4	(LEAST)	3.1
Land rental by students without land available	3.5		3.2
Livestock chains	3.6		3.5

* Not every teacher responded to each specific technique.

** Responses were given according to the following scales:

DEGREE OF UTILIZATION
(1) very much
(2) some
(3) very little
(4) none

DEGREE OF SUCCESS
(1) very much success
(2) some success
(3) very little success
(4) no success

In addition to the 26 pre-identified techniques located through the literature review, teachers were given the opportunity to answer and open ended question about additional ways of motivating student participation in SOE. Table 10 summarizes the teachers' responses to the open-ended question. The two most frequently given responses related to making SOE participation a required part of the vocational agriculture program, and using FFA proficiency awards, contests and banquets to spur student interest in supervised occupational experience projects.

TABLE 10

Additional Ways and Means of Motivating Student Participation in SOE Programs
(n=48)

MOTIVATIONAL TECHNIQUE	NO. OF RESPONSES*
Require it as part of the Vo-Ag program	12
FFA proficiency awards, contests, banquet	10
Stress potential financial returns	6
Home visits	4
Livestock shows/fairs	4
Field trips to observe SOEs & other schools	3
Slide presentation of previous projects	3
Emphasize successful student SOE projects	3
Agricultural career counseling	3
Use land lab	2
Show FFA films	2
State Officer speak to class	2
SOE member of the month	1
Plan for several years in advance	1
Chapter finance SOE in school lab	1
Cooperative placement	1
Emphasize skills learned	1
Parent/community support and participation	1

Objective Six

The intent of objective six was to identify techniques and procedures which teachers are using in dealing with urban students and/or situations. This objective was accomplished by asking teachers to respond to an open-ended question designed to solicit the one most successful technique for encouraging urban student participation in SOE. A total of 86 responses were received from the teachers.

Table 11 indicates that the technique for dealing with urban students that was mentioned most frequently was "provide opportunities for SOE on the lab". A total of 27 teachers indicated that it was the one most successful technique. This was followed by "require SOE as a part of grades", "use agricultural job placement" and "stress FFA awards".

TABLE 11

Successful Techniques for Encouraging SOE Participation With Urban Students and/or in Urban Situations
(n=60)

TECHNIQUE	NO. OF RESPONSES*
Provide opportunities for SOE in land lab	27
Require SOE as part of Vo-Ag program	10
Use agricultural job placement	8
Stress FFA proficiency awards, contests, banquet	7
Emphasize potential financial rewards	5
Cooperative project with other student	4
Stress successful peer SOE projects	4
Participate actively in youth fair/shows	4
FFA chapter crop on % basis	3
Use home improvement project	2
Gain parental/community support	3
Use home garden	2
Self-employed lawn care business	2
Stress daily record-keeping in class	1
Use financial record-keeping in daily life	1
Ornamental plant nursery	1
Agricultural career counseling	1
Stress home visits	1

* Several teachers responded with more than one technique.

CONCLUSION

1. There is an association between degree of urbanization and SOE scope. Students in urban areas tended to have SOE programs that are smaller in scope.

2. There is not an association between degree of urbanization and student participation in SOE programs. Urban and rural programs in Florida tended to have the same percentage of students with a supervised occupational experience program.

3. The highest ranked problem faced by Florida vocational agriculture teachers in providing SOE opportunities to students is considered by them to be limited land and facilities available at the student's home. Overall, teachers perceived the major problems in providing SOE to be centered around student factors such as limited resources, lack of transportation, and non-agriculture career goals, rather than community, school, or teacher variables.

4. The techniques utilized most frequently by teachers to provide SOE opportunities to their urban students is the use of the school land lab for student projects.

RECOMMENDATIONS

1. Because urban students tend to have smaller SOEs, teachers in urban areas should strive to provide as broad of an experience program as possible for their students.

2. Teachers, as well as school systems, should emphasize the land lab as an important method of providing SOE for urban students. Land labs should be managed so as to provide individual students, or groups of students, with the opportunity to function as entrepreneurs, responsible for management and record-keeping related to their allotted enterprise.

3. Teachers, as well as school systems, should emphasize agriculture-related job placement as an important method of providing SOE for urban students.

4. Teachers should require supervised occupational experience programs of all students, should spend more class time related to SOE, and should grade them.

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Research Paper Critique

RELATIONSHIP BETWEEN URBANIZATION AND SUPERVISED OCCUPATIONAL EXPERIENCE PROGRAMS IN FLORIDA

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I would like to compliment you Max on doing a fine job of presenting someone else's study. I would also like to compliment them on the choice for research in the field of Supervised Occupational Experience which is an important element in vocational agriculture programs. I would also compliment the researchers on their review of literature. Although it's only eight items, I discovered one of my studies, ten years old made the list.

The first thing I want to touch on is the non-respondents. As you recall, less than half of the schools did respond and a high percent of these non-respondents were agriculture mechanics. There is no indication of what was done about the non-respondents except to tell how they were different and they were. I feel that perhaps we had three different populations here, those in agriculture mechanics, those in production agriculture and those in horticulture. Perhaps, there could have been a stratification sample taken, get a sample of each of them. Since this was not done, then I think, you might want to investigate how those two groups (horticulture and production agriculture) differ, if they did. I think quite a few of those in horticulture might have been different from the population of production agriculture.

On the independent variable, the index of urbanization, we saw a very precise on the reliability, Crombach Alpha .83. However they did not say anything about what they put in there.

It was field tested, but for the reader, the validity of it can be established because we don't know what it is. Was it the acreage at the students home? Was it the population density where the student lived? Was it the population density where the school is located? We could use a little bit more information on that point.

One of the dependent variables, the participation, everybody participated, but what was the participation. I could use the definition of what was participation. We assume we use the standard definition for SOE as we heard at the SOE conference. However, two african violets on the window ledge is participation, as far as I know. I feel they could have been more precise.

The other dependent variable was scope. I thought the scoring system for scope even though it gets complicated when mixing in work for wages and putting them in dollars. There's a problem if you try to score co-op along with ownership and a mixture. It looked like you did as well as it is possible to do. Urbanization correlation which are axioms of chi-square, Urbanization and participation. They threw out part of a group there, and I wondered about that. They started off with a group score on urbanization of 0 to 11, then we picked up another 10, and we kept going to some other groups. What was done here, they used the most rural as one group, then they fixed up the next group in urbanization closest to them, or the least urbanized. So they worked with 66 schools instead of 77. I suppose also could have been the same or stronger if they had taken everyone. If you take the most urban and put those in there it's possible to throw out certain groups and come up with what you want. I've seen studies where they take the extreme and throw out the middle. I did wonder what happened to these other scores.

Now we're down to problem part of it. The number one problem that the teachers saw was the lack of facilities. A few things I would like to point out here, also just my own ideas. In my opinion the only thing a student has got to provide is interest. It is beside the point if they are interested what facilities because the teacher has got to work with them and help them get what they want. The time when we can chose only the students that can provide their own laboratories is over, if we want to have anybody in class. The idea of using school facilities, was brought up, it is a good thing and I compliment the Florida people for having that high a percentage of land labs. If you think about it, on the land laboratory, we can use all the delivery systems of our SOE. You can have ownership to some extent. You can hire some people and have co-op type things there. You can have improvement projects there. Students could improve things on the farm and you could have your supplementary skills. So all of our delivery systems can be brought out and used on the school farm.

THE RELATIONSHIP BETWEEN PARTICIPATION IN SELECTED FFA ACTIVITIES AND JOB SATISFACTION OF PROGRAM COMPLETERS IN VOCATIONAL AGRICULTURE IN TEXAS

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Introduction

Three components contributing to the program of vocational agriculture are laboratory and classroom instruction, supervised occupational experience programs (SOEPs), and activities of the Future Farmers of America (FFA). The latter, FFA activities, are an integral part of programs of vocational agriculture (Johnson, 1980); they provide a vehicle for the development of leadership and personal competencies necessary for occupational success (Gartin, 1984). Leadership and judging contests and livestock shows are three activities of the FFA that have a high priority in numerous Texas programs of vocational agriculture.

There has been much controversy concerning these activities and their relationship to vocational agriculture. Many outside vocational agriculture view FFA activities as having little value in the student's education or vocational preparation. In Texas, the Select Committee on Public Education (1984) recommended that students participating in any "extracurricular" activities maintain a passing grade in each school subject. The assumption of the committee was that any benefit derived from participation in an activity was less for the student than the benefit of being in the classroom, or of studying after class.

Debate over the role of "extracurricular" activities, including FFA activities in vocational agriculture, has not been resolved. Simply, the value of these activities is not known. For example, how does FFA involvement relate to one's vocation and job satisfaction?

Purpose and Objectives

The purpose of this study was to examine the relationship between participation in FFA activities and job satisfaction of program

completers in vocational agriculture. The specific objectives identified to accomplish this purpose were:

1. To determine the degree of student participation in FFA activities by program completers of vocational agriculture.
2. To determine the employment status of program completers of vocational agriculture.
3. To determine the job satisfaction of program completers of vocational agriculture.
4. To determine if student participation in FFA activities is related to job satisfaction.
5. To compare job satisfaction of students who had participated in a variety of FFA activities to students who had a high degree of participation in one FFA activity.

Methodology

The instrument used to collect data consisted of two sections. The first dealt with background characteristics, participation in FFA activities, and current occupational status. The second section was the short-form of the Minnesota Satisfaction Questionnaire (MSQ) (Weiss et al., 1967).

The population consisted of 1980 high school graduates who completed programs of vocational agriculture in Texas (approximately 7000 students). A cluster sampling technique was used with the sample developed by randomly selecting 100 schools in Texas offering vocational agriculture. Eighty-one vocational agriculture instructors responded to a first or second request; they furnished 653 names and addresses of program completers. This exceeded the 364 needed for a population size of 7000 (Krejcie & Morgan, 1970).

The questionnaires were sent to each of the 653 identified subjects. One hundred one were returned as undeliverable. Total response was 290 (44.4 percent) with an additional five identified as deceased and three out of the country. The response rate increases to 53.3 percent if subjects who were unable to respond (i.e., deceased, out of the country, and undeliverable addresses) are removed from the sample.

Respondents were dichotomized as early respondents and late respondents. A t-test analysis found no significant difference ($p<.05$) in the primary variables of importance to this study (e.g., FFA offices held, judging contest participation, job satisfaction) between early and late respondents; thus, the assumption was made that there were no differences among early respondents, late respondents, and non-respondents. The results of this study were generalized to all 1980 high school graduates in Texas who had completed a local program of vocational agriculture.

Results

A majority of the respondents in the study were male (238, or 82.4 percent), while 51, or 17.6 percent, were female, as seen in Table 1. Previous follow-up studies of vocational agriculture graduates had female percentages of between 2 and 3 percent (Herring, 1979, and Johnson, 1980).

Table 1. Sex of Respondents

Sex	Number (N=289)	Percentage
Male	238	82.4
Female	51	17.6

Respondents were asked to indicate their highest level of education. Table 2 indicates that 40.1 percent of the respondents graduated from

high school and received no further formal education; 41.2 percent attended college (<4 years); and 18.7 percent graduated from college.

Table 2. Educational Level of Respondents

Educational Level	Number (N=289)	Percentage
High school graduate	116	40.1
College no degree	119	41.2
College graduate	54	18.7

Table 3 reflects the number of years of membership in the FFA, highest degree of FFA membership, and number of FFA offices held by the respondents. Sixty-one and six-tenths percent (61.6%) indicated that they were members of the FFA for four years. The average number of years membership was 3.7.

Table 3. Years of Membership in the FFA, Degrees Earned, & Offices Held

	Number (N=289)	Percentage
Years of Membership		
Two years or less	30	10.5
Three years	50	17.4
Four years	177	61.6
Five years or more	30	10.5
FFA Degree		
Greenhand	41	14.3
Chapter Farmer Degree	155	54.0
State Farmer Degree	79	27.5
American Farmer Degree	12	4.2
FFA Offices		
None	105	36.3
One	95	32.9
Two	49	17.0
Three	20	6.9
Four or more	20	6.9

The Chapter Farmer degree was the largest category at 54.0 percent of those responding. An additional 27.5 percent had earned the State Farmer Degree and 4.2 had earned the FFA's highest degree, the American Farmer Degree. FFA offices were held by 63.7 percent of the respondents with the mean being 1.2 offices.

Subjects were ask to indicate the FFA judging and leadership contests in which they had participated, the levels of participation, and the number of years at each level. A score of 1 was given for each year at each level of each contest. From this, total participation scores for FFA judging contests and for FFA leadership contests were compued for each respondent. Two hundred-three respondents (70.2 percent) had participated in judging contests. The mean score for judging contest participation was 4.72. One hundred sixty-one (55.7 percent) had participated in leadership contests. Seventy-one respondents, or 24.6 percent scored from 1 to 3, while 90, 31.1 percent, scored 4 or more on leadership contest participation. The average score on leadership contests was 2.84.

Table 4. Participation Scores of Respondents in FFA Judging Contests, FFA Leadership Contests, and Livestock Shows and Fairs.

Participation Scores	Number (N=289)	Percentage
Judging Contests		
0	86	29.8
1 - 5	107	37.0
6 - 10	52	18.0
11 or more	44	15.2
Mean=4.72 Std. Dev.=5.74		
Leadership Contests		
0	128	44.3
1 - 3	71	24.6
4 - 6	46	15.9
7 - 9	25	8.6
10 or more	19	6.6
Mean=2.84 Std. Dev.=3.92		
Livestock Shows and Fairs		
0	54	18.7
1 - 5	90	31.1
6 - 10	85	29.4
11 - 15	30	10.4
16 - 20	15	5.2
21 or more	15	5.2
Mean=7.06 Std. Dev.=7.95		

A listing of the major livestock shows and fairs in Texas was provided for respondents, as well as space for the subjects to indicate local, county, and other shows in which they they had participated and the number of years at each show. A score of 1 was given for each year of participation at each different livestock show or fair. Only 18.7 percent had not participated in some livestock show or fair, while the mean score was 7.06 for livestock shows or fairs. Table 4 provides the distribution of scores for judging contests, leadership contests, and livestock shows and fairs.

Participation in other FFA activities (e.g., National FFA Convention, Food for America Program, FFA Banquets) by respondents is reported in Table 5. Only 15.9 percent of the respondents had not participated in one of the listed activities while 45.7 percent had participated in three or more. The mean participation level of all respondents was 2.66 activities.

Table 5. Other FFA Activities Participated in and FFA Awards Received by Respondents

Activities/Awards	Number (N=289)	Percentage
Activities		
None	46	15.9
One	60	20.8
Two	51	17.6
Three	38	13.1
Four	41	14.2
Five	23	8.0
Six	15	5.2
Seven or more	15	5.2
Mean=2.66 Std. Dev.=2.19		
Awards		
None	147	50.9
One or Two	80	27.7
Three or More	62	21.4
Mean=1.17 Std. Dev.=0.79		

One-half of the respondents indicated that they had not received any FFA award. One or two FFA awards had been received by 27.7 percent of the respondents, and about one-fifth had received three or more awards (See Table 5). A score for "other FFA activities and awards" was calculated by summing the number of activities and number of awards for each respondent.

The current occupational status of those responding to the survey is reported in Table 6. The largest single group was the non-agricultural occupations with 150 individuals or 51.9 percent. (It should be noted that while agricultural occupations in the table are catergorized, no attempt was made to categorize non-agricultural occupations.) The largest agricultural category, totaling 29 (10.0 percent), was agricultural related occupations. Twelve respondents (4.2 percent) were employed in professional agricultural occupations (e.g., vocational agriculture instructors, county agents). Respondents attending college totalled 53 (18.3 percent), with some of these having reported employment in other occupations as well. Only three respondents (1.0 percent) reported being unemployed.

Table 6. Current Occupational Status of Respondents

Occupational Categories	Number* (N=289)	Percentage*
Full-time farmer or rancher	19	6.6
Farm or ranch employee	25	8.7
Agri-business self-employed	6	2.1
Agri-business employee	16	5.5
Professional agricultural employee	12	4.2
Agricultural related occupation	29	10.0
Non-agricultural occupation	150	51.9
Homemaker	12	4.2
Military	1	0.3
Attending college	53	18.3
Unemployed	3	1.0
Part-time farmer or rancher	56	19.4

*NOTE: Numbers and percentages exceed the total sample since some respondents reported more than one occupation.

The short-form MSQ measures three scales of job satisfaction (general, intrinsic, and extrinsic) by employing a twenty item instrument. Completers of programs of vocational agriculture had high scores for general and intrinsic job satisfaction and average scores for extrinsic job satisfaction.

Table 7 provides data showing that 198 respondents (74.1 percent) scored 71 or higher on general job satisfaction. The mean general job satisfaction score was 76.54, indicating that program completers of vocational agriculture had an "above average" degree of satisfaction with their jobs. (Means for the three scales were calculated from the ungrouped data.)

Intrinsic job satisfaction is a scale consisting of twelve of the twenty items on the general job satisfaction scale. Data in Table 7 show that 231 (86.5 percent) of the respondents scored 41 or higher on the intrinsic job satisfaction scale. According to Weiss et. al. (1967), a score of 45 or higher indicates a high degree of satisfaction for intrinsic job satisfaction items (i.e., ability utilization, achievement, activity, authority, creativity, independence, moral values, responsibility, security, social service, social status, and variety). The mean intrinsic job satisfaction score for respondents was 47.79, indicating that respondents possessed a high degree of satisfaction with intrinsic factors.

Extrinsic job satisfaction is measured with six items from the general job satisfaction scale; these items are advancement, company policies, compensation, recognition, supervision-human relations, and supervision-technical. A score of 22.5 or higher would indicate high extrinsic job satisfaction (Weiss et. al., 1967). As shown in Table 7,

Table 7. Distribution of General, Intrinsic, and Extrinsic Job Satisfaction Scores of Respondents

Score	Number	Percentage
General Job Satisfaction Scores		
20 - 50	11	4.2
51 - 60	15	5.6
61 - 70	43	16.1
71 - 80	101	37.8
81 - 90	61	22.8
91 - 100	36	13.5
TOTAL	267	100.0
Mean=76.54 Std. Dev.=12.55		
Intrinsic Job Satisfaction Scores		
12 - 20	2	0.8
21 - 30	4	1.5
31 - 40	30	11.2
41 - 50	135	50.6
51 - 60	96	35.9
TOTAL	267	100.0
Mean=47.79 Std. Dev.=7.58		
Extrinsic Job Satisfaction Scores		
6 - 10	13	4.9
11 - 15	23	8.6
16 - 20	71	26.6
21 - 25	114	42.7
26 - 30	46	17.2
TOTAL	267	100.0
Mean=21.00 Std. Dev.=5.06		

the mean extrinsic job satisfaction score for respondents was 21, indicating that program completers of vocational agriculture had an "average" satisfaction with extrinsic factors.

Overall, there was no significant relationship between FFA participation and job satisfaction. However, when current occupation (agriculture versus non-agricultural) was introduced as an intervening variable, a significant relationship was discerned. (Fraze and Briers, in 1986, found that FFA participation and career choice were significantly related.) Those program completers who had high participation scores and who were employed in agricultural occupations scored significantly higher on general ($p<.05$), extrinsic ($p<.05$), and intrinsic job satisfaction ($p<.01$) than did their counterparts who had high FFA participation scores but who were employed in non-agricultural

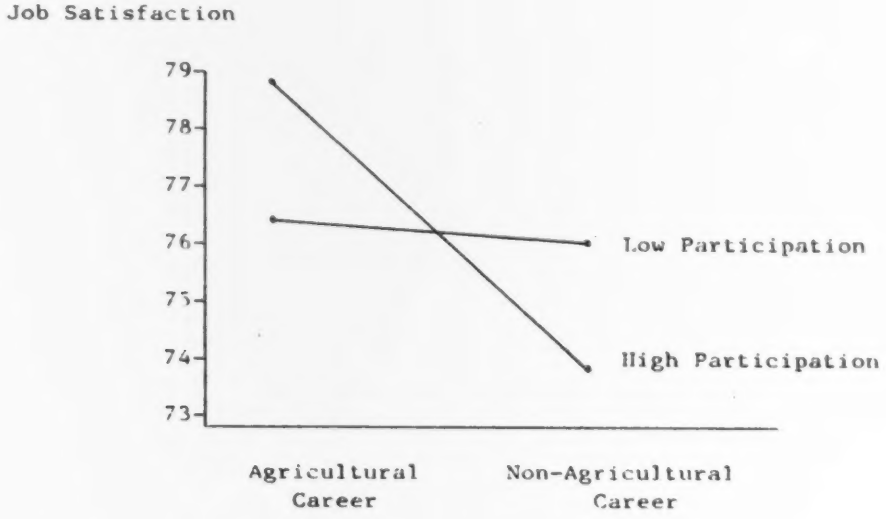

Figure 1. Interaction Effect of Level of FFA Participation and Career Choice on Job Satisfaction.

occupations. Type of occupation was not related to the job satisfaction of completers who had low FFA participation scores. Figure 1 depicts the

data for overall (general) job satisfaction only; relationships involving intrinsic and extrinsic job satisfaction are similar.

Objective 5 was concerned with comparing job satisfaction of respondents who had participated in a variety of FFA activities with respondents who had a high degree of participation in one FFA activity. No difference was found in the satisfaction score of the two groups; but once again when respondents were divided into two groups of agricultural versus non-agricultural occupation, a difference was detected. It was found that respondents who had participated in a balance of FFA activities and who were employed in agriculture had higher scores for general ($p<.05$) and intrinsic ($p<.01$) job satisfaction than their counterparts with balanced participation and employed non-agriculturally.

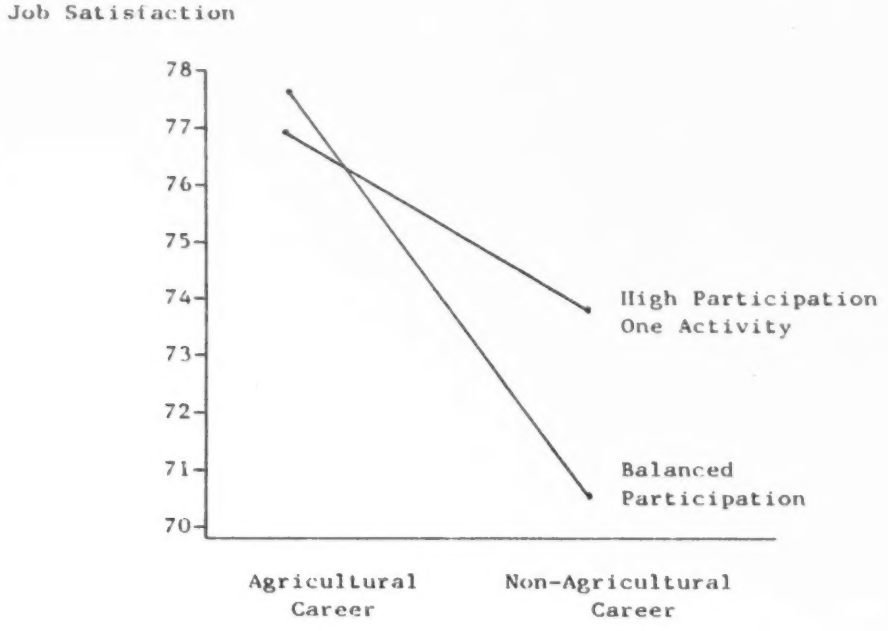

Figure 2. Interaction Effect of Type of FFA Participation and Career Choice on Job Satisfaction.

Respondents in agriculture with a high degree of participation in one FFA activity had higher intrinsic satisfaction scores ($p<.05$) than subjects

who participated highly in one activity and were employed in non-agricultural jobs, but the slope was not as pronounced as for those who had balanced FFA participation (See Figure 2).

Major Findings

1. Program completers of vocational agriculture have a high employment rate with only 1 percent unemployment.

2. Job satisfaction scores for all program completers of vocational agriculture are high for general and intrinsic job satisfaction and average for extrinsic job satisfaction.

3. Program completers with high FFA participation scores have higher general, intrinsic, and extrinsic job satisfaction with their job when subjects were employed in agricultural occupations, than when employed in non-agricultural occupations.

4. Program completers who participate in a balanced program of FFA activities are more satisfied in their jobs when employed in an agricultural occupation.

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Research Paper Critique

THE RELATIONSHIP BETWEEN PARTICIPANTS IN SELECTED FFA ACTIVITIES AND JOB SATISFACTION OF PROGRAM COMPLETERS IN VOCATIONAL AGRICULTURE IN TEXAS

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Introduction

The impact of participation in the FFA program as a member is a topic which raises the emotions of all of us in the profession of agricultural education. This has been true since the inception of the vocational agriculture program with its philosophical foundations and tenets which emphasized the intra vs extra curricular nature of the FFA. Surely the benefits of FFA participation (competencies in leadership, citizenship, and cooperation) accrue to all members even upon program completion, students do not enter occupations directly related to agriculture. No philosophical arguments here, right.

In Texas however, apparently there has been much discussion about this tenet - - - at least in terms of what I'll term the "excess rule" - - which states, "Anything, no matter what it is, can be potentially damaging to your health if taken in excess". Examples include coffee, sugar, cigarettes, sex, and my wife even includes golf! The point is, as our researchers told us . . . the "Texas Rule" as passed by the legislature which requires students participation in "extracurricular activities" to have a passing grade in each school subject . . . is based on the belief that . . . excessive outside school activity participation may be damaging to your grades. Even though we could argue the old extra/intra curricular question related to FFA, we will not because at this point and for this study . . . it's not really an issue.

Frazer and Briers have conducted a study in an attempt to determine the relationship of FFA participation to the student completing vo-ag programs. For this they are to be commended. Without attempts such as this study, our extra/intra question will not likely ever be resolved.

The Research

Purpose

As I see it, and in terms even I understand, Fraze and Briers essentially asked the following questions:

1. Whad'ya do in FFA? (degree of participation)
2. Whad'ya doing now for a job? (employment status)
3. Do ya' like your job? (job satisfaction)
4. Did whad'ya do in FFA have any impact on how satisfied you are? (relationshi

Instrumentation

They measured these variables in an attempt to answer the questions by a two part instrument. The Minnesota Satisfaction Question is a standardized normed instrument. I would like to know however, what it's reliability is for the population studied. Likewise, I would think it appropriate to have some information on the developmental and field process for the instrument section on FFA participation, occupational status and background characteristics. I am sure these procedures were done but as consumers of research, we need to know this information.

Population

Data were gathered and generalized to the 7,000 vo-ag program completers from 1980. It is with this situation that I have a major concern. Although my only concern about the procedures used to determine the sample (653 program completers as identified by teachers from 100 randomly selected schools) is the question why if one only needs a sample size of 364 as reported by the paper, then why were 653 individuals surveyed? In my mind, more isn't necessarily better - - rather - - representativeness is better. I would suggest randomly selecting the required sample and doing everything possible to obtain complete response and of course follow up non-respondents is necessary. My questions concerning "generalizability" relate to the fact that responses were received from 289 program completers (53.3). Although the researchers investigated for differences between early and late respondents they did not describe any check for differences between respondents and non-respondents. However, they state that the "assumption was made that there were no differences among early respondents, late respondents and non-respondents." If non-respondents were followed up and it was not reported, then the researchers are to be commended. If not, then of course the conclusions should be generalized to the 289 individuals who responded. Otherwise, results might be questionable if generalized to the total group. For example, the finding that 41.2 percent of the program completers attended college and 18.7 percent graduated is interesting and somewhat complementary to the vo-ag program but the question remains - - is this

representative of all completers since research shows that more highly educated individuals tend to respond more frequently? Likewise, it was reported that 72% of the respondents were long time (5 years or more) FFA members. Maybe they felt more satisfied or positive toward FFA and therefore tended to respond more readily. Since we don't know if non-respondents were different, then can we speak of the total population of 7,000 in terms of the 289 respondents. I think not.

Results

Before we look at results, a general concern should be noted. Other than the identification of the use of t-test to test possible differences between early and late respondents, no mention is made in the paper relative to statistical procedure used to determine the existence of differences and relationships. It would be well if we knew those techniques used. In terms of results, the researchers found no relationship between participation and job satisfaction. However, when looking at the intervening variable of current occupation, some interesting interactions were found.

I found it interesting but not surprising that high participators were more satisfied in their agricultural jobs than were high participators in non-ag careers. What I did find more surprising was that individuals in non-ag careers who indicated high participation in one activity appeared more satisfied than those who had a balanced program of participation. Maybe extensive involvement with steer projects isn't as bad as Ross Perot believes! A word of caution . . . Let's not base all recommendations on the basis of the relationship of one variable (participation) to job satisfaction. For instance, other variables such as current salary, work environment, or supervisory type have been found to be related to degree of job satisfaction and may in this instance as well.

In summary, the researchers have conceptualized, designed and conducted a high quality research project that is limited in its "generalizability" only if non-respondents were in fact not followed up. We in the profession who believe so intensely in the value of FFA have some more empirical rather than emotional evidence to support our beliefs. More data needs to be collected to further support these assumptions. I would also like to see studies designed that study the area of job satisfaction with multiple independent variables being studied using multiple regression or other similar multivariate analyses. We also need more research to identify whether program completers in non-agriculture careers are using skills (whether leadership or otherwise) gained through their vocational agricultural experiences.

SIXTH GENERAL SESSION

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A NATIONAL EVALUATION: TEACHER AND STUDENT PERCEPTIONS OF THE FFA'S FOOD FOR AMERICA PROGRAM

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A NATIONAL EVALUATION: TEACHER AND STUDENT PERCEPTIONS OF THE FFA'S FOOD FOR AMERICA PROGRAM

INTRODUCTION

The FFA initiated the Food For America program (FFAP) in 1975 and the response has proved positive. Food For America is an effort to assist FFA chapters in improving the communication of agriculture's message to the consuming public. The National FFA Center provides program materials and guidance to assist FFA members in telling elementary school students the success story of American Agriculture and the bountiful supply of food and other agricultural products in the market place. FFA Chapters participating in the Food For America program have the opportunity to obtain instructional kits, films, lesson plans and guides for classroom activities concerning the nature of farming and agribusiness.

NEED FOR THE STUDY

The Food For America program appears to be successful and influential in creating positive responses for the many local chapters involved in the program. However, there has been no effort to institute a formal investigation with regard to program improvement. The desire to improve the program and make it more practical and adaptable indicated the need for a specific research effort to survey participating chapters.

PURPOSE

The purpose of this study was to gather, analyze and report reliable data to the National FFA's Board of Directors in order that they may review teacher and student responses regarding their perceptions of the Food For America program.

OBJECTIVES

1) To determine the effectiveness of the FFAP as perceived by selected FFA members, elementary teachers, and FFA advisors.

2) To determine the areas within the existing FFAP which need improvement (including: instructional materials, presentations, sources of materials, etc.).

3) To determine if the FFAP could be adopted by other agricultural organizations/agencies as perceived by the vocational agriculture and elementary teachers.

4) To determine, by Region, the extent of FFA chapter utilization of the FFAP based upon number of chapters that participate, number of student participants, number of programs presented and number of program recipients.

5) To determine what period within the academic year most FFAP's are presented and what period seems most suited for FFAP's.

6) To assess the vocational agriculture teacher's elementary teacher's and vocational agriculture student's impression of the FFAP.

7) To gather sufficient meaningful data in order to recommend the continuance/dis-continuance of the FFAP.

8) To acquire specific demographic data relative to the study.

PROCEDURE

The National FFA Center provided a list of FFA Chapters who had requested Food For America program materials during 1980, 1981 or 1982. This group of "participants" provided a population from which the sample was drawn. A stratified proportional random sample of chapters presenting FFAP programs were selected to oparticipate in the study. The sample consisted of 250 FFA Chapters geographically located by region as follows: Central Region - 100; Western Region - 68; Eastern Region - 50; Southern Region - 32 (refer to Table I).

TABLE I

STRATIFIED PROPORTIONAL RANDOM SAMPLE BY REGION

Region	Population	Proportion(%)	Sample Size
Central	944	40.0	100
Western	637	27.0	68
Eastern	459	20.0	50
Southern	297	13.0	32
Totals	2337	100.00	250

Seven hundred fifty questionnaires were mailed to 250 selected vocational agriculture departments. The FFA Advisors were asked to complete the questionnaire designated to them as well as being responsible for distributing and returning survey instruments designed for FFA members selected by the instructor and a participating elementary teacher. (The distribution of respondents is reported in Table II).

TABLE II

DISTRIBUTION OF RESPONDENTS BY REGION

REGION	Distribution of Respondents								
	FFA MEMBERS			ELEMENTARY TEACHERS			FFA ADVISORS		
	SAMPLE SIZE	N	%	SAMPLE SIZE	N	%	SAMPLE SIZE	N	%
CENTRAL	100	60	60.00	100	57	57.00	100	56	56.00
WESTERN	68	28	41.18	68	25	36.76	68	29	42.65
EASTERN	50	23	46.00	50	21	42.00	50	22	44.00
SOUTHERN	32	13	40.63	32	13	40.63	32	13	40.63
Totals	250	124	49.60*	250	116	46.40*	250	120	48.00*

*The percentages reflected in the three respective categories are a percentage of the regional sample size and are not intended to sum to 100%.

Collegiate FFA members, local vo-ag and elementary teachers were involved in conducting the pilot test of the survey instrument.

To insure appropriate involvement of a pre-determined number of chapters, those who indicated they did not participate in the FFAP were not considered as a part of the study and were replaced by a like number of selected chapters who did.

Results Related to Data Collection

The following section consists of major findings of the data collected. The report included: questions asked of participants surveyed and responses of the participants. Frequencies of responses and percentages were used to describe the data published in this report. Conclusions and recommendations are also included.

FFA MEMBERS' QUESTIONNAIRE RESULTS

1. What elementary class group is ideal to present the FFAP to?

Response	Frequency * N	%
First Graders	21	16.94
Second Graders	27	21.77
Third Graders	62	50.00
Fourth Graders	38	30.65
Fifth Graders	11	8.87
Others	8	6.45

2. Is the FFAP beneficial to the FFA members?

Response	Frequency N	%
Yes	123	99.19
No	1	.81
Total	124	100.00

3. How do the FFA members feel abou the FFAP?

Response	Frequency N	%
Enthusiastic, receptive, etc.	100	80.65
Non-enthusiastic, etc.	6	4.84
Don't know how they feel about the program.	17	13.71
Total	124	100.00

4. "Should" the FFAP be continued as a public relations activity?

Response	Frequency N	%
Yes	123	99.19
No	1	.81
Total	124	100.00

5. Of the following, who most often conducts the FFAP?

Response	Frequency N	%
Chapter Officers only	19	15.32
Chapter Officers and Members	97	78.23
Members only	8	6.45
Total	124	100.00

6. Do you believe all FFA chapters should participate in the FFAP?

Response	Frequency N	%
Yes	113	91.13
No	11	8.87
Total	124	100.00

7. What is the best one support material for the FFAP?

Response	Frequency N	%
NR	1	.81
Hand-out material	27	21.77
Films	20	16.13
Visual-aides (Posters,etc.)	8	6.45
Use the "real thing" (ex. Live Animals)	32	25.81
All of the above	54	43.55
Other	2	1.61

*Non-Total — N and % varies due to respondents' having more than one opportunity to indicate a choice.

NR - No Response

ELEMENTARY TEACHERS' QUESTIONNAIRE RESULTS

1. What month of the year seems most suitable for the FFAP?

Response	Frequency N	%
NR	2	1.73
January	6	5.17
February	14	12.07
March	21	18.10
April	27	23.28
May	16	13.79
August	2	1.72
September	10	8.62
October	9	7.76
November	7	6.03
December	2	1.72
Total	116	100.00

2. How many elementary students participate in the FFAP?

Response	Frequency N	%
21-30	24	20.69
31-40	16	13.79
41-50	13	11.21
51-60	6	5.17
61-70	6	5.17
More than 70	47	40.52
Less than 21	4	3.45
Total	116	100.00

3. How much time is spent presenting the FFAP to each elementary class?

Response	Frequency N	%
Less than one class period (less than 40 min.)	13	11.21
A full class period (approximately 40 min.)	58	50.00
More than one class period (more than 40 min.)	45	38.79
Total	116	100.00

4. How many elementary school classes are presented the FFAP per academic year?

Response	Frequency N	%
NR	4	3.45
1 to 4 elementary classes	84	72.41
5 to 8 elementary classes	18	15.52
9 to 12 elementary classes	3	2.59
More than 12 elementary classes	7	38.79

5. What elementary class group is ideal to present the FFAP to?

Response	Frequency N	%
First Graders	18	15.52
Second Graders	27	23.28
Third Graders	54	46.55
Fourth Graders	28	24.14
Fifth Graders	15	12.93
Others - Specify	10	8.62

6. Is the FFAP beneficial to the elementary students?

Response	Frequency N	%
Yes	116	100.00
No	---	00.00
Total	116	100.00

7. How do the elementary students feel about the FFAP?

Responses	Frequency N	%
NR	1	.86
Enthusiastic, receptive	113	97.41
Non-enthusiastic, etc.	0	00.00
Don't know how I feel	2	1.73
Total	116	100.00

8. How do you as an elementary teacher feel about the FFAP?

Responses	Frequency N	%
NR	1	.86
Enthusiastic, receptive	112	96.55
Non-enthusiastic, etc.	2	1.73
Don't know how I feel	1	.86
Total	116	100.00

9. Are the FFAP materials provided by the FFA Chapter useful?

Response	Frequency N	%
NR	1	.86
Yes	114	98.28
No	1	.86
Total	116	100.00

10. What could be provided to improve the program?

Responses	Frequency *	
	N	%
Films	49	42.24
Improve Lesson Plan	16	13.79
More Classroom Activity	46	39.66
Additional Instructional Material	9	7.76
Other	9	7.76

11. Is the FFAP too:

Response	Frequency	
	N	%
Long?	3	2.59
Short?	7	6.03
Just about the right length	106	91.38
Total	116	100.00

12. Should the FFAP be geographically localized?

Responses	Frequency	
	N	%
NR	59	50.86
Yes	51	43.97
No	6	5.17
Total	116	100.00

13. What is the best one support material for the FFAP?

Response	Frequency *	
	N	%
Hand-out Material	29	25.00
Films	14	12.07
Visual-aides (posters, etc.)	10	8.62
Use the "real thing"	58	50.00
All of the above	26	22.41
Other	1	.86

14. "Should" incentives be provided for your students to participate in the FFAP?

Responses	Frequency	
	N	%
NR	5	4.31
Yes	66	56.90
No	45	38.79
Total	116	100.00

15. "Who" should provide the incentive for elementary students to participate in the FFAP?

Response	Frequency	
	N	%
NR	49	42.24
FFA Chapter	56	48.28
Elementary School	4	3.45
Elementary Teacher	6	5.17
Other	1	.86
Total	116	100.00

16. "Should" the FFAP be presented by some other group rather than FFA?

Responses	Frequency	
	N	%
NR	5	4.31
Yes	12	10.34
No	99	85.35
Total	116	100.00

17. "Should" the FFAP be continued as a public relations activity?

Responses	Frequency	
	N	%
Yes	115	99.14
No	1	.86
Total	116	100.00

18. How many FFAP programs per academic year should be presented?

Responses	Frequency	
	N	%
None	0	0.00
1 to 3	108	93.10
4 to 6	6	5.17
7 to 9	0	0.00
More than 9	2	1.73
Total	116	100.00

19. Did your elementary class(es) participate in the Food For America Program in 1983?

Responses	Frequency	
	N	%
NR	2	1.73
Yes	94	81.03
No	20	17.24
Total	116	100.00

20. How many years have your elementary classes participated in the FFAP?

Responses	Frequency	
	N	%
NR	1	.86
1 to 3	71	61.21
4 to 6	37	31.90
7 to 8	7	6.03
Total	116	100.00

*Non-Total - N and % varies due to respondent's having more than one opportunity to indicate choice.

NR - No Response

FFA ADVISORS' QUESTIONNAIRE RESULTS

1. How many programs per academic year do you present?

Response	Frequency N	%
1 to 4	101	84.17
5 to 8	15	12.50
9 to 12	1	.83
More than 12	3	2.50
Total	120	100.00

2. What month of the year seems most suited for the FFAP?

Response	Frequency N	%
January	9	7.50
February	35	29.17
March	15	12.50
April	16	13.33
May	14	11.67
August	2	1.67
September	9	7.50
October	12	10.00
November	7	5.83
December	1	.83
Total	120	100.00

3. How many FFA members participate in the FFAP?

Response	Frequency N	%
1 to 10	64	53.33
11 to 20	35	29.17
21 to 30	9	7.50
31 to 40	2	1.67
41 to 50	4	3.33
More than 50	6	5.00
Total	120	100.00

4. How much time is spent presenting the FFAP to each elementary class?

Response	Frequency N	%
NR	1	.83
Less than one class period	11	9.17
A full class period	59	49.17
More than one class period	49	40.83
Total	120	100.00

5. How many elementary school classes are presented the FFAP per academic year?

Response	Frequency N	%
NR	1	.83
1 to 4 elementary classes	79	65.83
5 to 8 elementary classes	29	24.18
9 to 12 elementary classes	4	3.33
More than 12 elementary classes	7	5.83
Total	120	100.00

6. What elementary class group is ideal to present the FFAP to?

Response	Frequency N	%
First Graders	22	18.33
Second Graders	31	25.83
Third Graders	56	46.67
Fourth Graders	30	25.00
Fifth Graders	13	10.83
Others	8	6.67

7. Is the FFAP beneficial to the FFA members?

Response	Frequency N	%
Yes	120	100.00
No	0	0.00
Total	120	100.00

8. How do the elementary students feel about the FFAP?

Response	Frequency N	%
Enthusiastic, receptive	114	95.00
Non-enthusastic, etc.	1	.83
Don't know how they feel about program	5	4.17
Total	120	100.00

9. How do the elementary teachers feel about the FFAP?

Response	Frequency N	%
Enthusiastic, receptive	110	91.67
Non-enthusiastic	2	1.67
Don't know how they feel about program	8	6.67
Total	120	100.00

10. Are the FFAP materials provided by the National FFA Office useful?

Response	Frequency N	%
NR	1	.83
Yes	117	97.50
No	2	1.67
Total	120	100.00

11. What could be provided to improve the program?

Response	Frequency N	%
Additional or new films	74	61.67
Improve lesson plan	23	19.17
More classroom activity	39	32.50
Additional instructional material	13	10.83
Other	5	4.17

12. Is the FFAP too:

Response	Frequency N	%
NR	2	1.67
Long	4	3.33
Short	1	.83
Just about right	113	94.17
Total	120	100.00

13. Should the FFAP be geographically localized?

Response	Frequency N	%
NR	4	3.33
Yes	54	45.00
No	62	51.67
Total	120	100.00

14. What is the best one support material for the FFAP?

Response	Frerquency N	%
Hand-out material	36	30.00
Films	15	12.50
Visual-aides	11	9.17
The Real Thing	53	44.17
All of the above	27	22.50
Other	4	3.23

15. "Should" an incentive be provided to the chapter to participate in the FFAP?

Response	Frequency N	%
NR	I	.83
Yes	84	70.00
No	35	29.17
Total	120	100.00

16. "Who" should provide the incentiver to the chapter to participate in the FFAP?

Response	Frequency N	%
NR	35	29.17
National FFA Association	49	40.83
State FFA Associaiton	27	22.50
Other	9	7.50
Total	120	100.00

17. "Should" the FFAP be continued as a public relations activity?

Response	Frequency N	%
Yes	119	99.17
No	1	.83
Total	120	100.00

18. If yes, for which one of the following other reasons should FFA members participate in the FFAP?

Response	Frequency N	%
FFA member involvement	28	23.33
State & National Awards	10	8.33
Promotion of Agriculture	38	31.67
Educational	20	16.67
All of the above	67	55.83
Other	2	1.67

19. "Should" the FFAP be designed to be adopted by other agricultural groups?

Response	Frequency N	%
NR	3	2.50
Yes	68	56.67
No	49	40.83
Total	120	100.00

20. "Did" your chapter participate in the Food For America Program in 1983?

Response	Frequency N	%
NR	1	.83
Yes	100	83.34
No	19	15.83
Total	120	100.00

21. "How" many years has your chapter participated in a "Food For America" type of program (The FFAP has only been in existence since 1974)?

Response	Frequency N	%
1 to 3	56	46.67
4 to 6	38	31.67
7 to 8	15	12.50
More than 8 years	11	9.16
Total	120	100.00

* Non-Total - N and % varies due to respondents' having more than one opportunity to indicate a choice.

NR - No Response

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Major Findings

In addressing the major findings, reference was made to the three groups included in the questionnaire results.

1. FFA Members
2. Elementary Teachers
3. FFA Advisors

FFA Members

More than 80% of the FFA members surveyed indicated that third and fourth grade elementary classes were the most ideal in which to present the Food For America program.

All but one FFA member surveyed felt that the Food For America program was a beneficial activity for FFA member participation.

While 13.71% of the members participating in the study indicated that they didn't know how they really felt about FFAP, more than 80% indicated they were receptive and enthusiastic. In addition, 123 out of 124 respondents indicated that the Food For America Program should be continued as a public relations program. A large majority of survey respondents revealed that is was their perception that a combination of both officer and members conducted the FFAP for elementary students while 15.32% indicated that FFA officers were the ones who conducted the program.

More than 91% of the FFA members surveyed in the study indicated all FFA chapters should participate in the study; whereas, less than 9% indicated otherwise.

While most of the study participants indicated that a combination of hand-out materials, films, visual-aides and using "the real thing" was best suited for presenting the FFAP, over 25% stated that the best one support aide was the opportunity to use "the real thing".

Elementary Teachers

More than 55% of the elementary teachers responding to the survey indicated that either March, April or May were the months most suitable for their classes to participate in the Food For America Program, while December seemed to be least advantageous.

Over 40% of the elementary teachers surveyed indicated that more than 70 students under their supervision were presented the Food For America Program. The most frequent class size reported was in the range of 21-30 elementary students.

Fifty percent of the elementary teachers surveyed noted that FFA members conducting the Food For America program to their students used a forty minute class period in which to present the FFAP. Furthermore, over 72% of the elementary teachers responding indicated that from 1 to 4 elementary classes had the opportunity to witness a FFAP presentation.

Over 70% of the elementary teacher participants revealed that they perceived the third and fourth grade elementary classes were the most ideal in which to present the FFAP, while almost one-fourth (23.28%) believed that the second graders should be included. In addition, all elementary teachers participating in the survey indicated that the Food For America Program was beneficial for their students. Furthermore, over 96% of the elementary teacher respondents indicated that they themselves were enthusiastic concerning the Food For America Program while more than 97% perceived that their students were excited about FFAP.

Almost all (98.28%) of the elementary teachers surveyed stated that material provided by the FFA chapters were useful in presenting the Food For America program, however more than 42% indicated films would improve the FFAP, while over 39% indicated that more classroom activity would be an improvement. In addition, over 91% of the elementary teachers' responses revealed that the Food For America programs presented to their students were "just about the right length", and a majority (50.86%) stated the FFAP should be geographically oriented to meet local needs. Fifty percent of the elementary teachers responding indicated the use of "the real thing" was the best support aide when presenting a Food For America program.

FFA Advisors

A clear majority (53.33%) of advisors indicated the number of FFA members presenting Food For America generally ranged from 1 to 10 while over 29% of the advisors admitted that 11 to 20 members generally presented their local FFAP's. In addition over 49% of the Advisors' indicated a full class period was usually spent in presenting Food For America programs to elementary classes while over 40% that took more than a full class period.

Over two-thirds (65.83%) of the FFA Advisors indicated that 1 to 4 elementary school classes were presented FFAP programs during each academic year. In addition over 71% of the FFA Advisors surveyed indicated that they believed third and fourth grades to be the most ideal elementary classes which to present Food For America Programs.

All of the FFA Advisors responding to the FFAP survey indicated that the Food For America program was beneficial to the FFA members involved, whereas 95% indicated that they believe that elementary students were enthusiastic and receptive towards the Food For America program. In addition over 91% of the FFA Advisors indicated that elementary teachers participating in the program were receptive and enthusiastic.

Over 97% of the Advisors surveyed indicated that FFAP materials provided

by the National FFA Center were useful in presenting Food For America programs whereas over 61% indicated either additional or new film(s) would improve FFAP presentations.

All but seven of the FFA Advisors surveyed seem to believe that the time frame for Food For America program was about the right length.

Contrasting with the elementary teachers a majority (51.67%) of the FFA Advisors indicated the present National emphasis of the program was best suited for FFAP presentations, however 45% of the Advisors indicated they agreed with the elementary teachers in geographically localizing the programs.

The FFA advisors indicated the best two support materials used in FFAP's were hand-out materials and "the real thing" respectively.

An overwhelming majority (70.00%) of the FFA advisors believe that incentives should be provided for FFA chapters participating in the Food For America. Furthermore over 62% seem to think that either State FFA Associations or the National Organization should provide those incentives. It is interesting to note that almost one-third (29.17%) of the Advisors participating in the survey did not provide a response regarding who should provide incentives for conducting FFAP programs.

All except one of the Advisors surveyed inidicated FFAP should be continued as a public relations activity. Over 31% of the Advisors in the survey indicated that the Promotion of Agriculture was a leading "reason" for continuing FFAP as a "PR" activity while involving FFA members in conducting the program was an important aspect. However, a clear majority (55.83%) of Advisors responding indicated the FFAP should be continued as a public relations activity because of a combination of reasons: Promotion of Agriculture, FFA member involvement, Educational nature of the program and the incentive for either State or National recognition.

A clear majority (56.67%) of Advisors surveyed indicated that the Food For America program should be designed so that it could be adopted by other agricultural groups.

Over 83% of the Advisors responding to the survey said that their chapters participated in the 1983 FFAP, in addition, 31.67% indicated that they had been participating in the Food For America program for 4 to 6 years, while over 9% of the FFA Advisors surveyed said that they have been conducting "Food For America" type programs for more than eight years.

A combination of both FFA officers and members is the best approach to conducting a Food For America program. The benefits of FFA members involvement, the development of a public relations program and the promotion of agriculture provides an opportunity that FFA chapters can not afford to miss. The Food For America program should be a part of every chapter's annual Program of Work and be added as a requirement for National Chapter Awards recognition.

Conclusions

Based upon the findings, the Food For America Program conducted by FFA Chapters across the nation has had a more than favorable impact upon the survey participants which included FFA members, FFA Advisors, Elementary teachers and students. The result of the favorable impact, as indicated by the positive response of the survey participants leads to the following conclusions:

The number of respondents indicating their enthusiasm and the need to continue the FFAP as a public relations activity is indictive of the esteem in which the program is held. In addition, it can be rather emphatically stated that the Food For America program is beneficial for FFA members involved in conducting the program.

It is readily apparent that the spring semester seems to be the accepted time of the year to conduct Food For America programs. In addition, third and fourth grade classes seem to be the more popular groups which to present programs and the development of future materials should be oriented toward this age group.

A class period of 40 minutes or more is needed to adequately conduct a Food For America program, while the optimum number of elementary classes involved in the FFAP seems to be somewhere between 1 to 4 class groups.

Both elementary teachers and their students are enthusiastic regarding the Food For America program and the advantages derived from student involvement is beneficial.

There is mutual agreement that films and/or more classroom activities would improve the FFAP whereas the advantages of "using the real thing" (i.e. livestock, grain, flour, bread, etc.) as support materials offers an additional dimension to enhance the acceptance of the program.

The Food For America Program should maintain a national perspective while local chapters should localize the presentation to acquaint elementary students with food products grown and consumed locally.

Levels of recognition for FFA Chapters presenting FFAP's as reported by FFA Advisors should be provided as an incentive by both State FFA and National FFA organizations. Furthermore there is sufficient evidence to conclude that FFA Chapters providing incentives would generate a more positive response from elementary students and teachers.

It is readily apparent that 1 to 4 Food For America programs during an academic year is a sufficient number.

Promotion of agriculture seems to be the most important reason to conduct the Food For America program whereas the FFA should be the only group which presents FFAP's to elementary students. However, there is adequate support among FFA Advisors to encourage the National Center to design FFAP kinds of materials that can be adopted by other agricultural groups.

Most of the respondents who participated in the Food For America programs during 1983 had done so for 1 to 3 years.

Recommendations

As a result of the major findings and conclusions drawn from analysis and interpretation of data, the following recommendations were made:

Based on the close working relationship the FFA chapters have with local public school systems the local FFA should be the only organization presenting the Food For America program in the local school.

It further recommended that the Food For America Program be directed toward educating elementary students, promotion of agriculture, development of a public relations program and involvement of local FFA members.

The National FFA Center in cooperation with the major farm organizations and other agricultural agencies should develop a film entitled "Food For America". It was further recommended that FFAP materials be developed that could be shared and or adopted by other agricultural groups.

Recognition should be provided at the local, state and national level which would offer additional incentives for more FFA chapters to become Food For America Program participants.

The Food For America program should become a part of the requirement for chapters to receive National Chapter recognition.

A special media campaign should be conducted to high light the Food For America program during National Agriculture Week; to promote agriculture and enhance the image of the FFA.

Reciprocal research efforts should be conducted involving FFA participants on a state or regional basis. Similar research involving other areas of the FFA Program of Work should be considered.

Specific research efforts should be conducted to investigate the nature, extent and potential for training chapter officers and members to implement, improve and/or expand local Food For America programs.

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Research Paper Critique

NATIONAL EVALUATION: TEACHER AND STUDENT PERCEPTIONS OF THE FFA'S FOOD FOR AMERICA PROGRAM

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The FFA Food For America Program has been on-going for over 10 years without concrete evidence to justify allocation of resources to support it. This study was very timely and important. It provides data to justify continuance and improvement of the Food For America Program. I have several comments and questions most of which center around the objectives.

I think the purpose of the study should have been more in line with the title, the need and the objectives. The purpose as stated was to give the national board of directors some reliable data to review. I think that maybe the purpose should have been more to evaluate the Food For America Program based on teacher and student perceptions or something along those lines. The procedure used to identify the population for the study was satisfactory. However, I have several questions. Number one: What criteria did the FFA advisors use to select FFA members as respondents? Number two: What criteria, other than participation, was used to select elementary school teachers as respondents? Were advisors given any guidelines on how to select these? Could the results of the study have been biased due to the sampling procedures used? If I read Table 2 correctly, the response rate for the study was less than 50 percent for each group, which I think is a low response rate. My question here is why was the follow-up not conducted to get more responses?

I have some difficulty relating the findings back to the objectives. For example, objective number one was to determine the effectiveness of the Food For America program as perceived by selected FFA members, elementary teachers, and FFA advisors. I am not sure which variables in the study measure effectiveness. Perhaps, a definition for effectiveness might have

clarified this. Objective number four was to determine, by region, the extent of FFA chapter use of the Food For America program. However, I did not find this data reported by regions. Some tables to represent responses by region would have been helpful. I do not think any attempt was made to compare responses from the three groups. Another stated objective of the study was to acquire specific demographic data relative to the study. I think that is procedure and probably should not have been stated as an objective.

In the major findings it was reported that over 71 percent of the FFA Advisors indicated that they believe 3rd and 4th grades to be the most ideal elementary classes to which to present Food for America programs. Why report this finding when slightly more than 72 percent of the advisors believed that 2nd and 3rd graders were the most ideal grade level. Also there was also a similar occurrence with the elementary teachers responses. It was reported that over 70 percent of the teachers believed that 3rd and 4th grade students to be ideal, when 4th graders received one more response (28) than 2nd graders, which received 27 responses. It was concluded that 3rd and 4th graders were most ideal to present Food For America program. My question here is: Is this conclusion valid? On what did you base this conclusion? I could see where it might be valid if you based it solely on the responses of the students. However, I do not think that conclusion is valid when based on the responses of those other groups. My last question is: How was it determined that a combination of officers and members is the best approach to conduct a Food For America program? This question was asked of the students. I think, that 99 of the students reported that maybe members or one of them should be used and 19 members reported that the other should be used to conduct the Food For America program.

NOMINAL GROUPS: AN EFFECTIVE TOOL FOR FACILITATING DECISIONS AND FOR PROMOTING SATISFACTION AMONG CONFERENCE PARTICIPANTS

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NOMINAL GROUPS: AN EFFECTIVE TOOL FOR FACILITATING DECISIONS AND FOR PROMOTING SATISFACTION AMONG CONFERENCE PARTICIPANTS

INTRODUCTION

The Nominal Group Technique (NGT) has been widely used as a tool for identifying and solving problems in organizational development, curriculum planning, and business management. It has been perceived that educators, change agents, and administrators active in change need a tool like the NGT if they are effectively to foster commitment to change. However, it had not been used in a multi-cultural setting, insofar as could be ascertained. Also the literature did not reveal any studies measuring the satisfaction of participants with the use of NGT to reach a consensus. Consequently, the International Conference on Food and Water at Texas A&M University, May 26-30, 1985, provided an opportunity to apply the NGT within the framework of a cross-cultural setting. This conference involved a diverse, international population, presenting a unique opportunity to evaluate the use and usefulness of the NGT in a cross-cultural setting involving people who themselves were decision makers and change agents.

PURPOSE OF THE STUDY

The purpose of this study was to determine whether or not people with differing professional backgrounds and responsibilities, who participated in the structured process of a nominal group technique in the setting of a cross-cultural conference, expressed personal satisfaction with the technique used.

THEORETICAL BASIS FOR THE STUDY

Identifying priorities relevant to both the real and perceived needs of conference participants necessitates innovation

and creativity in the conference program. One way to maximize participation, (and thus innovation, creativity, and commitment), is to use a structured small group process. Delbecq shows that "... a number of major research studies substantiate the superiority of nominal groups (groups in which individuals work in the presence of one another but do not interact) as compared with conventional 'brainstorming' groups" (1:472).

Many conferences have used discussion groups to promote conferee involvement, but these groups have been shown to be less than ideal for increasing the satisfaction of participants because of unequal opportunity for less-dynamic individuals to express their views (4). Nominal groups begin with the goals (1,3,4,5):

1. To increase creativity and participation in group settings involving problem-solving and/or fact-finding tasks.
2. To develop or expand perception of critical issues within problem areas.
3. To identify priorities of selected issues within problems.
4. To obtain the input of many individuals without the dysfunction of unbalanced participation.

It thus may be theorized that if individuals are involved in the process of identifying problems, then they may express more interest and receive greater personal satisfaction from being involved in that process. Even in small "discussion" groups, some individuals may not feel free to contribute, or may feel that their opinion is not significant.

Because of differences in personality, backgrounds, culture, and values, they may not feel comfortable participating in traditional discussion groups. As a result, some individuals may not experience a "good feeling" about their being involved in small groups as an activity of a conference. The nominal group technique is claimed to "counteract and ... minimize some of the dysfunctional features of working groups" (4:129). NGT elicits the contributions of individual members without the hindering dynamics of group work. "NGT is a structured activity facilitating group-based decision-making" (4:130). Therefore, adding to the rationale developed in the previous paragraph, it may be theorized that participants in the NGT in a cross-cultural conference setting would express satisfaction with such an activity.

HYPOTHESES

Consequently, as derived from the theoretical base, the following null hypotheses were tested, using data from the survey:

1. There will be no significant difference among participants in the subject matter sections of a conference as regards their expressed attitudes toward the NGT.

2. There will be no significant difference between previous participation in an NGT and non-participation with respect to the expressed attitude toward the NGT.

3. There will be no significant difference between those participating only in the NGT and those also participating in conference program reaction panels, with respect to the expressed attitudes toward the NGT.

4. There will be no significant difference between the perceived status of policy-maker or non-policy-maker based on their expressed attitudes toward the NGT.

5. There will be no significant difference between groups perceived as fluent and non-fluent in English, based on their expressed attitudes toward the NGT.

PROCEDURE FOR THE STUDY

The International Conference on Food and Water was organized to include active participation by those attending; it provided an excellent setting in which to examine the statements of theory outlined above. Conference participants included more than two hundred ranking policy-makers, educators, administrators, and change agents from around the world. Among them were representatives of the Secretary Generals of the United Nations and the Organization of American States, a Vice President of the World Bank, President of the Inter-America Development Bank, ministers of agriculture, directors of rural and agricultural development schemes, etc. In this conference with such distinguished participants, an emphasis was on application, not abstraction. NGT was chosen as a tool to promote conferee involvement.

Appendix A describes the NGT activities at the conference. Trained NGT facilitators conducted the NGT sessions, involving approximately 178 persons, to formulate a consensus of opinion regarding the priority of issues in water and food policy, overcoming the external biases of background, culture, and class, which may normally hinder reaching a consensus. The next day, 110 conferees present who had participated in the nominal groups (62% of the 178) were surveyed using a one-page, twenty-five question opinionnaire (Appendix B), developed by faculty and graduate students of the Department of Agricultural Education at Texas A&M University. A limitation in the collection of data was that the conference schedule did not permit surveying the participants until the day after the NGT sessions--thus the lower response rate. The measurement evaluated only the conferees' perceived opinions of the NGT, as used at the conference. It did not

evaluate the conference itself, nor was it intended to predict the effect of the conference. It was not an evaluation of the results of the NGT. Respondents were encouraged to write any comments desired regarding the NGT on the back of their opinionnaires; fifty-two comments (47% of the 110) were received.

The survey consisted of five biographical background questions and twenty, five-point, Likert-scale statements on the conferees' attitudes toward the Nominal Group Technique. The twenty statements were grouped into four sub-attitudes of Previous Attitude, Usefulness of the NGT, Personal Involvement in the NGT, and Structure of the NGT. Statement responses ranged from "Strongly Agree" to "Strongly Disagree" (Table 4). The discrete item responses were summed and statistically analyzed.

ANALYSIS

Independent variables were obtained from the conference section and biographical background questions. They were:

1. Conference section in which respondents participated (Water Supply, Water Salinity, Water Management, Integrated Ecosystems, Water and Energy, and Technology)
2. Previous exposure to NGT vs. no previous exposure
3. Reaction panelist vs. NGT participant only
4. Policy-maker vs. non-policy-maker
5. Fluency in English vs. non-fluency.

Opinionnaire items 9, 11, 13, 15, 16, and 18 were phrased in the negative on the instrument; therefore, their raw rankings were inverted to produce correspondingly low numbers to indicate high satisfaction, the same as for the other items on the survey. Pearson and Spearman Correlations were performed on the discrete data of the twenty attitude questions--the dependent variables.

RESULTS AND CONCLUSIONS

The results of this study apply to the population of educators, change agents, administrators, scientists, and policy-makers who attended this conference on international policy. Implications exist for possible generalization to attendees at other conferences on international policy.

Tables 1 and 2 present the distribution of NGT participants among conference areas and expressed biographical backgrounds.

Table 1. Distribution of Conference Participants by Interest Groups

Section	Number (N=102)	Percentage
Water Supply	17	17
Water Salinity	13	13
Water Management	23	23
Integrated Ecosystems	13	13
Water & Energy	20	20
Technology	16	16

Table 2. Biographical Backgrounds of NGT Participants.

Independent Variable	Yes N	Yes %	No N	No %
Had Prior NGT or Delphi Experience	31	28	78	72
Was NGT Participant Only, Not Reaction Panelist	77	71	31	29
Considered Self a Policy Maker	33	30	77	70
Considered Self Fluent In English	102	94	7	6

Table 3 illustrates the significance of relationships among the background items, indicating that policy makers did not perceive themselves as having previous experience with a consensus-generating technique, and that policy makers tended to have participated in the NGT only, not in the reaction panels, at this conference.

Table 3. Pearson Correlation Coefficients for Background Items

	B2	B3	B4	B5
B2 Prior NGT experience				
B3 NGT participant only	.01			
B4 Policy maker	-.23*	.39**		
B5 Fluent in English	.03	-.14	-.13	
Usefulness of NGT	-.09	-.07	-.02	-.27**
Personal Involvement	-.29	-.18	-.16	.13
Structure of NGT	-.04	-.30**	.09	-.05
Sum of sub-attitudes	-.13	-.22*	.11	-.10

*p<.05 **p<.01

Table 4 reflects the respondents' attitudes towards the NGT. Attention is drawn to the fact that ninety-five participants (87%) expressed that they had been skeptical of the use of NGT, and yet most participants expressed satisfaction with group size and agreed that group consensus is more effective wtih individual action alone. Two items did not seem to be issues: the relative value of personal opinions compared with the group consensus, and the relative amount of attention given to scientists and technical experts.

Table 4. Levels of Agreement with Attitude Items, by Percent, Concerning the NGT, Expressed by Participants in an International Conference on Food and Water (N=110)

Item	Levels of Agreement*				
	SA	A	N	D	SD
6. Understand purpose of NGT	50.9	41.0	7.2	0.9	0.0
7. Agreement with purpose of NGT	6.5	27.1	27.1	31.8	7.5
8. Skeptical of NGT	36.7	50.5	11.0	0.9	0.9
9. Would use NGT in the future	25.9	44.4	16.7	8.3	4.6
10. Personal opinions made known	33.0	46.8	9.2	7.3	3.7
11. Personal opinions valued	36.1	33.3	18.5	6.5	5.6
12. Personal opinions better than consensus	7.3	19.3	39.5	28.4	5.5
13. Personal opinions same as consensus	8.3	40.7	20.4	23.2	7.4
14. Felt free to express self	42.2	38.5	7.3	5.5	6.4
15. There was enough time to discuss issues	3.7	25.7	19.3	22.0	29.4
16. NGT was not a poor use of conference time	27.1	45.8	21.5	0.0	5.6
17. Group was about the right size	25.7	54.1	7.3	11.0	1.8

*SA=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree

Table 4. (Cont'd)

Item	Levels of Agreement*				
	SA	A	N	D	SD
18. Group was not too large	30.6	59.3	6.5	2.8	0.9
19. Group was aided by my personal contribution	8.3	44.4	35.8	8.3	3.7
20. Will try to persuade others to act according to consensus	12.8	47.7	26.6	10.1	2.8
21. Committed to work by group's consensus	20.6	57.0	18.7	0.9	2.8
22. World food situation will improve if I act according to my group consensus	11.0	46.8	29.4	8.3	4.6
23. Group consensus of action in problem-solving more effective than individual action alone	39.5	50.5	6.4	2.8	0.9
24. More attention to LDC representatives needed	24.8	29.4	31.2	9.2	5.5
25. More attention to scientists and technical experts was needed	5.8	21.1	47.1	23.1	7.7

*SA=Strongly Agree, A=Agree, N=Neutral, D=Disagree, SD=Strongly Disagree

Table 5 presents a summary of attitudes toward the NGT statements, as expressed by the 110 participants surveyed.

Table 5. Summary of Responses on Attitudes Towards the NGT By Category of Statements

Attitude Sub-Category	Statements	Mean	Median	Std. Dev.
Previous Attitude	8	1.6	1.0	0.7
Usefulness of NGT	6,7,9,16,23	2.1	2.0	2.3
Personal Involvement	10,11,12,13, 14,19,20,21,22	2.8	2.8	2.8
Structure of NGT	15,17,18,24,25	2.5	2.4	2.3
Mean of Means on subscales of usefulness, involvement, and structure		2.5		

The mean overall satisfaction rating of 2.5, on the summary of attitudes for the use of NGT, was based on respondents' reactions to a scale of 1 to 6, with 1 = strongly agreeable and 5 = strongly disagreeable. In addition to the mean of 2.5 obtained, several favorable comments received from participants can serve to illustrate participants' favorable attitudes towards the NGT.

1. "This was a good way to involve participants and was a perfect way, in my group, at least, of keeping one opinionated loud-mouth from overwhelming the others."

2. "I think it is an interesting way of making people express their ideas and work together, arriving at recommendation by consensus."

3. "The use of NGT at this conference strikes me as an interesting and valuable approach. It provides a "product" of agreed-upon critical issues that may be acted upon."

However, several comments revealed some individual respondents' dissatisfactions with some aspects of NGT as used at the conference, such as timing of the NGT activities during the conference, and the levelling of worth of all ideas expressed.

CONCLUSIONS

From an analysis of the data collected, certain conclusions can be drawn about NGT and the satisfaction with its use expressed by those participating in it at an international conference:

1. Background does appear to affect satisfaction with NGT. Those who had previously been exposed to NGT were less skeptical about its use in the conference; those fluent in English tended to be more skeptical about the use of NGT than those who were not.

2. Reaction panelists tended to express more satisfaction with the structure of the NGT than those conferees who participated only in the NGT sessions.

3. Those fluent in English tended to not agree with the purpose of the NGT, and did not indicate that consensus work was more effective than independent work.

4. As the mean of overall satisfaction from Table 5 indicates, a significant relationship appeared only with the variable of a person being a NGT participant, and as a high overall rating for the NGT was significantly common for those who participated in other conference activities, such as reaction panels, it was concluded that those who

participated in more than one type of conference activity expressed greater satisfaction with the use of the NGT than those who did not. Not presented here are conclusions pertaining to the significance of the inter-relationships of the attitudes expressed towards the NGT.

IMPORTANCE OF THE RESULTS

The number of issues related to agricultural and educational policy increases each year, and conferences are one of the most common ways of bringing together educators, agriculturalists, administrators, and policy makers to try to arrive at a consensus regarding priorities of action for the future. This study provides some significant answers as to the satisfaction of participants with the nominal group technique as a consensus-facilitating tool when used in one multi-cultural, policy-centered conference.

Implications for us as agricultural educators are many. Vo-ag teachers often desire more important suggestions from advisory committees; vo-ag students should be taught NGT as another problem-solving tool. With the advent of low-cost "tele-conferencing", NGT could provide a structure from which educators and administrators would work to identify and solve problems in their various disciplines, using audio public address system telecommunications, slow scan TV, electronic writing boards, or synchronous computer conferencing. Currently, methodology textbooks, especially those addressing techniques of adult or extension education, have not yet addressed the use of NGT as a learning/teaching/problem-solving tool; nor have they projected HOW educators of the future could put to work this most-valuable problem-solving tool--the NGT. Efforts should be made to compare, in a controlled setting, NGT with other group

techniques for arriving at a consensus, as this was not possible in this particular study. Nevertheless, this investigator believes that the NGT is a most-valuable problem-solving tool, and should be used more widely to further the decision-making process.

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APPENDIX A

NOMINAL GROUP TECHNIQUE FOR TAMU CONFERENCE
JOHN R. HOYLE

Condensed by Jon Gresham

NGT has five steps:

1. Silent generation of ideas. The question under consideration is shared. Each participant is then charged to silently write brief phrases or statements which will answer the question.

2. Round-robin recording of ideas. The participants are asked to read one of their ideas. Each will be recorded on a flip chart or black-board. No discussion takes place. One-by-one, each participant either gives an idea or passes until all of the ideas generated by the group have been recorded. The ideas will be numbered as recorded.

3. Each idea is clarified and discussed in the order in which it was presented. This step is designed to eliminate misunderstanding which might have arisen concerning each idea presented.

4. Vote on importance. Each participant is asked to rank the top five items out of all those on the chart. They write their selections on note cards. The votes are counted and tallied for each item.

5. Final vote. From the process, a list of answers, by importance, is obtained.

This final vote summarizes the NGT process: it determines the outcome of the meeting, it provides a sense of closure and accomplishment, and it documents the group judgement.

APPENDIX B

PLEASE HELP US! WE NEED YOUR PERCEPTIONS
CONCERNING THE NOMINAL GROUP TECHNIQUE (NGT) USED IN THIS CONFERENCE

A. Please circle the NGT section of the conference in which you participated.

Water Supply	*Water Salinity*	*Water Management*	*Integrated Ecosystems*	*Water & Energy*	*Technology*

B. Please circle either "Yes" or "No" after each of the next four questions.

2. *I had participated in a nominal group technique (NGT) or a Delphi process before coming to this conference.* . . . Yes No
3. *I participated only in the NGT, not in the Reaction Panel.* Yes No
4. *My position back "home" is that of policy maker.* . . . . . Yes No
5. *I am completely fluent in English.* . . . . . Yes No

C. Please circle the number to the right of each statement that most nearly expresses your opinion about each statement.

Strongly disagree — 1
Disagree — 2
Neutral — 3
Agree — 4
Strongly Agree — 5

6.	I understand the purpose of this NGT activity.	1	2	3	4	5
7.	I agree with the purpose of this NGT activity.	1	2	3	4	5
8.	I was skeptical of this NGT approach to identifying issues of concern.	1	2	3	4	5
9.	I would NOT use the NGT myself in the future.	1	2	3	4	5
10.	I felt that my opinions were made known.	1	2	3	4	5
11.	I felt that my opinions were NOT valued.	1	2	3	4	5
12.	I felt that, overall, my opinions were better than what emerged as the group consensus.	1	2	3	4	5
13.	I felt that my opinions differed form the group's consensus.	1	2	3	4	5
14.	I felt able to express myself freely.	1	2	3	4	5
15.	I felt that there was NOT enough time to discuss issues.	1	2	3	4	5
16.	I believe that the NGT was a poor use of conference time.	1	2	3	4	5
17.	I believe that my group was about the right size.	1	2	3	4	5
18.	I believe that my group was too large.	1	2	3	4	5
19.	I felt that my contribution helped the group.	1	2	3	4	5
20.	I am committed to work according to my group's consensus.	1	2	3	4	5
21.	I will try to persuade others to act according to my group's consensus.	1	2	3	4	5
22.	I believe that the world food situation will improve if I act in accordance with my group's consensus.	1	2	3	4	5
23.	I believe that working in a group to arrive at consensus in problem-solving is more effective than my working alone.	1	2	3	4	5
24.	I believe that more attention should have been given to representatives from lesser-developed countries.	1	2	3	4	5
25.	I believe that more attention should have been given to scientists and technical experts.	1	2	3	4	5

D. Please write other comments about our use of the NGT on the reverse side.

THANK YOU VERY MUCH

Research Paper Critique

NOMINAL GROUPS: AN EFFECTIVE TOOL FOR FACILITATING DECISIONS AND FOR PROMOTING SATISFACTION AMONG CONFERENCE PARTICIPANTS

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Since I teach a course at Oklahoma State University with an emphasis on the role of agriculture education in international development I was especially pleased with this study. With the increasing demand and emphasis at institutions of higher education across the country, for agriculture education departments to broaden their scope to include an international component I am particularly pleased to see the research being conducted which includes as participants our worldly neighbors. The author is to be commended for choosing a nontraditional group, particularly a cross-cultural group of participants for his study.

I am thankful that the author forwarded to me a more detailed report of his investigation for my review. Thus, my remarks pertain to the research based upon that report rather than the popularized version submitted in the form of a proposal for sharing with you today. Additionally, my remarks are based upon the questions that occurred to me as I read the report. This was an interesting study. This study was designed to determine whether or not people with differing professional backgrounds and responsibilities, who participated in the structured process of a nominal group techniques setting of a cross-cultural conference, express personal satisfaction with the technique used. Obviously, this is an important area of concern since one of the objectives of small group meetings is to allow everyone in attendance an opportunity to provide personal opinions and or to enter into discussions. Now this did raise the following questions or comments relative to this study: Since the author made such an issue in his introduction to his knowledge the NGT had not been used in a cross-cultural setting, would not it be logical to include in the title Cross-Cultural Conference Participants rather that just conference participants? Perhaps this small modification might make it easier for other investigators who, too, are searching for related research.

I am a little concerned about the author being so confident that the NGT had not been used in a multi-cultural setting, because I am just as confident that it has been at some point in time. I commend the author for an excellent description definition of NGT and that is one of the strengths of the paper, its description.

As far as the treatment of the data was concerned, I felt it was an excellent exercise in statistics, very well thought out, excellently planned, very well carried out, and obviously excellently reported. I was very pleased with that. Basically, the author used five hypotheses as a foundation for his research and ultimately those statistical analyses tested those hypotheses. However, I did find it to be unique that a report of the findings included frequency distributions that could not be linked to the hypothesis. Therefore, it may have been to the authors advantage to have utilized, as a part of his foundation, some objectives.

Another question seemed to keep surfacing as I reviewed the authors conclusions. Where in the report is it stated whether or not the hypotheses were accepted or not accepted? The conclusions appeared to be broad, somewhat general, and not specific. Thus, in keeping with the title of the study: Was the NGT an effective tool for facilitating students? Based upon my review, I can merely assume it was effective. I did discover in the findings that more than one-half of the participants indicated there not enough time to discuss the issues. Should it have been reported that perhaps the NGT could be more effective if more time for discussion could be allowed? I further discovered that more than one-half of the participants indicated that more attention to representatives of lesser developed countries was needed. Once again as one examines the effectiveness of a technique: Is that particular finding noted?

The author closed the report with statements regarding the importance of the research and the extent it could be applicable and useful to those of us in traditional agricultural education, vocational agriculture settings or environments. No mention was made pertaining to the further use of it in cross-cultural settings. Perhaps a statement to that effect would have made the report that much more important.

Finally, I have to ask the question: Was this a dual purpose effort, in other words, was this study a study to compare demographics of participants or was it a study to determine the effectiveness of a technique or was it both? It appeared to me to be both. Therefore, the title of this study may be only half complete.

In conclusion, my discussing this paper has been a most enjoyable experience and I sincerely appreciate the effort and energy exerted by the author. I trust that my comments have not been perceived as negative but rather as statements of questions

or curiosity, because it was an excellent paper. Certainly there is more good than bad which can be found within it. I even went back to Websters, and looked up the word" bad" and probably what I should have said was "there was more good than not good", but I hope that John does not misinterpret the word "bad". I hope his investigation does not stop here. An excellent paper.

VOCATIONAL AGRICULTURE FOR THE YEAR 2000

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Introduction

Vocational agriculture programs are experiencing a period of change. The provisions of the Carl Perkins Vocational Education Act and the economic crises that face the federal and state governments are again forcing agricultural educators to reexamine where our program should be going.

The national study of agricultural education currently under way is attempting to determine what role vocational agriculture programs should play in the future. The study is a result of the leaders in the agricultural education profession realizing that an assessment is needed. Jones (1980) may have predicted the current emphasis being placed on program evaluation when he wrote that vocational agriculture teachers need to ask four questions about the nature, longevity, and quality of vocational agriculture programs of the future: (a) whom will we serve, (b) how will we serve, (c) how well will we serve, and (d) how will we be led? Rawls (1980) also predicted changes in the vocational agriculture programs of the future when he listed seven factors that would bring about change in the 1980's, including pressures for accountability, changing teacher attitudes, population shifts and changing technology.

Are the critics correct when they say that vocational agriculture is an ineffective, nonproductive "life science" or

"hobby" program that's retained only out of political necessity (Zurbrick, VocEd, January, 1979)? Is vocational agriculture intended to be a quality, vocational education program that keeps up with technological change and provides the training needed for agriculture and agribusiness of the future? These and other questions need to be answered.

In an attempt to determine where the program should be going, this project sought to answer two questions:

1. What should Vocational Agriculture/Agribusiness Programs be like in the year 2000?

2. What plans or changes do we need to be making now to insure that our programs will be strong and healthy in the year 2000?

No one really knows the "right" answers to these questions, but one way to try to determine where our programs should be going is by asking the vocational agriculture teachers who run the local programs.

Objectives

The objectives of this study were as follows:

1. To determine vocational agriculture teachers' opinions of the components that should be included in the program in the future.

2. To determine vocational agriculture teachers' opinions of the importance of selected factors in insuring that the vocational agriculture program will continue to be a quality program.

Procedure

The population consisted of all high school vocational agriculture teachers in the United States as listed in the 1985 edition of the Agriculture Teachers Directory. Cochran's sample size formula was used to select a sample size of 250 from which a return rate of 84.4% (211) was achieved after two mailouts and one phone follow-up.

A closed-form questionnaire designed to secure the information needed was developed. The instrument was field tested with teachers and modified based on their comments. Reliability for the two scales in the instrument was assessed using Cronbach's Alpha (r values of .91 and .89 were calculated). The data were analyzed using descriptive statistics.

Findings

The responses to the statements related to how important selected components will be to vocational agriculture programs in the teachers' communities in the year 2000 are presented in Table 1.

The responses to the statements related to how important selected external factors will be to quality vocational

agriculture programs on the local level in the year 2000 are presented in Table 2.

Conclusions and Recommendations

1. It was concluded that FFA related activities were not seen as highly important components of vocational agriculture programs of the future when compared to the other components addressed in the study. Three of the four FFA related components rated in the bottom five components while FFA contests were rated as thirteenth from the bottom out of 30 components (FFA contests - 22nd, FFA proficiency awards program - 29th, state/American Farmer degree program - 306th, computers for use in managing FFA activities - 33rd). It is recommended that agricultural educators at all levels of the program should support research and related activities to determine the role that FFA should play in the program.

2. It was concluded that state supervision of programs was not seen as an important factor in insuring that programs of the future will be quality programs. It is recommended that NASAE address their role in program improvement and quality maintenance and determine if the quality of local programs should remain as a priority of the state supervision program.

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Table 1

Importance of Selected Components to Vocational Agriculture Programs in the Respondents' Local Community for the Year 2000

Rank	Component	Mean[a]	S.D.
1	Leadership instruction	4.51	.69
2	Agricultural record keeping instruction	4.30	.80
3	Farm/agribusiness management instruction	4.19	.97
4	Welding laboratories	4.18	.75
5	Summer programs of vocational agriculture	4.14	.90
6	SOEP supervision	4.12	.79
7	Woodworking laboratories	4.02	.89
8	Computers for use in Vo-Ag program management	4.10	.96
9	Computers for instructional use	4.05	.92
10	Small gas engine laboratories	3.97	.83
11	Agricultural mechanics instruction	3.95	.87
12	Placement SOEPs (Co-op training, internships)	3.93	.90
13	Energy and natural resources instruction	3.92	.96
14	Greenhouses	3.91	.86
15	Farm/agribusiness power and machinery laboratories	3.91	.90
16	Post-secondary programs (junior colleges, vo-tech schools)	3.91	.98
17	Individualized instruction	3.88	.88
18	Competency-based instruction	3.78	.87
19	Ownership SOEPs for Vo-Ag students	3.73	.89
20	Agricultural supplies and services instruction	3.73	.97
21	Electricity laboratories	3.71	.99
22	FFA contests	3.70	.92
23	Animal science instruction	3.69	.97
24	Agronomy instruction	3.67	.97
25	Other plant and soil science laboratories (besides greenhouses)	3.65	1.12
26	Meats/or food processing laboratories	3.64	.91
27	Animal science laboratories	3.64	.95
28	Horticulture instruction	3.61	1.10
29	FFA proficiency awards program	3.55	.86

Table 1 (continued)

Importance of Selected Components to Vocational Agriculture Programs in the Respondents' Local Community for the Year 2000

Rank	Component	Mean[a]	S.D.
30	State/American Farmer Degree Program	3.51	.92
31	Land laboratories	3.51	1.00
32	Adult education programs (in high schools)	3.40	1.10
33	Computers for use in managing FFA activities	3.31	1.09
34	Vo-Ag Computers Lab	3.05	1.21

[a]not important = 1, slightly important = 2, moderately important = 3, very important = 4, extremely important = 5

Table 2

Importance of Selected External Factors in Insuring Quality Programs for the Year 2000

Rank	Factors	Mean[a]	S.D.
1	Teacher pay and benefits	4.78	.44
2	Teacher professionalism	4.70	.50
3	Retention of competent teachers in the profession	4.68	.54
4	Quality of new Vo-Ag teachers	4.64	.55
5	Leadership shown by individual Vo-Ag teachers	4.63	.54
5	The perception of our program by others	4.63	.60
7	State funding	4.61	.63
8	Job opportunities for Vo-Ag program completers	4.58	.59
9	Publicity about Vo-Ag programs	4.58	.61
10	Local school board funding	4.58	.67
11	Recruitment of students into Vo-Ag programs	4.56	.63
12	Federal funding	4.50	.78
13	Agricultural awareness in junior high school	4.49	.64
14	Local supervision of programs	4.28	.76
15	Supply of new Vo-Ag teachers	4.28	.76
16	In-service programs for Vo-Ag teachers conducted by state Agriculture/Agribusiness Education staff	4.28	.78
17	Instructional materials development	4.22	.75
18	In-service programs for Vo-Ag teachers conducted by teacher education programs in agriculture	4.22	.76
19	Teacher certification requirements	4.18	.78
20	Pre-service teacher education programs in ag.	4.15	.79
21	Agricultural awareness in elementary schools	4.13	.81
22	Graduate degree programs in Agricultural Education	4.11	.77
23	Local advisory councils	4.11	.91
24	Development of computer software for Vo-Ag programs	4.06	.88

Table 2

Importance of Selected External Factors in Insuring Quality Programs for the Year 2000

Rank	Factors	Mean[a]	S.D.
25	Record-keeping for student awards and recognition	3.91	.84
26	Computer networks (such as Ag-Ed Network)	3.72	.96
27	School provided facilities for SOEPs	3.68	1.02
28	State supervision of programs	3.67	.94
29	National supervision of programs	2.99	1.14

[a]not important = 1, slightly important = 2, moderately important = 3, very important = 4, extremely important = 5

Research Paper Critique

VOCATIONAL AGRICULTURE FOR THE YEAR 2000

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I want to commend Joe and Dave for conducting this study. I believe that this research problem is important to our profession. Evidence of its significance and relevance were presented by the researchers in the paper. It is critical, in my opinion, that we conduct research of this nature to help chart program direction for the future. The researchers are to be complimented for a well organized and well written document. They should be commended for this cooperative research effort between faculty members of two different universities in the same state. Such efforts should be encouraged in each of our states in my opinion. In fact, I believe we ought to be doing more research with colleagues in other disciplines within our own universities.

The introduction develops the problem statement that leads into the study of the problem very well. Research questions and objectives were clearly stated. The tables for reporting the results were well organized and clearly presented. Reliability measures for the two scales used were accessed with excellent results. The return rate of 84.4%, while Joe wanted it to be more, I think, is commendable for survey research. They are also to be commended for their diligent follow-up procedures resulting in this return rate. As noted in today's presentation they did follow-up the non-respondents and detected no differences between respondents and non respondents. This was not however, reported in the paper.

I have, now, a few suggestions for improvement and concern. I would like to see the literature review and the introduction section expanded and attention paid to the development of a theoretical framework. I would like to see an explanation of the

rationale for selecting vocational agriculture teachers as the population to study, or at least, why the study was limited to vocational agricultural teachers. Did the researchers consider involving others, such as, state staff personnel, teacher educators, school administrators, former students or those involved in the business of agriculture? Surely, these groups can have a valuable input into the design of the program or perhaps, a recommendation for further study.

I have some questions and concerns relating to the instrument used to collect the data. How were the items selected for inclusion in the instrument? While the instrument was field tested with a group of teachers, it was really not too clear as to how many were involved, how they were selected, and what their instructions were for reviewing the instrument, and what modifications if any resulted from the field test. Let me share a concern related to the data collection and analysis. The researchers missed the opportunity, in my opinion, of having an explanatory descriptive study, by failing to collect data, or at least to report the data, that would attempt to describe relationship between variables. For example, might there have been differences in the way teachers responded to certain items based upon their age, teaching experience, present teaching situations, background, etc.

It would also be interesting to see an analysis the composite responses to various components of the program. In other words, a grouping of items related to the FFA, SOEP, constructional component, facilities component, laboratory component, etc. While the tables displayed in the paper, to present the findings, were well designed and easy to interpret, I was disappointed to not to find any discussion or explanation of the tables in the text.

Finally, some comments related to the conclusions drawn. Joe, let me ask you and Dave a question. In the instrument, did you have the various components clearly identified so that teachers would know when they responded to different components? (Response was yes.) I was not clear on what the researchers concluded. Let me give you a statement right off the paper, "It was concluded that FFA related activities were not seen as highly important components of vocational agriculture programs of the future when compared to the other components addressed in the study." I think I can certainly support that conclusion if the teachers clearly understood that the number one ranked item happened to be leadership instruction and if it was clear that, that was an instructional component, rather than an FFA component. I can see your conclusion. My concern would be whether teachers interpreted that as part of the instructional component or still had a carry-over effect that is related to FFA. I know that in Texas, anytime you mention leadership you are automatically connected to FFA. That might have been a possibility.

Is this the only conclusion that you can reach from data generated from the first scale? For example, why not a positive conclusion related to the importance of agricultural business, management, and record keeping. These items will rank #2, #3 and #8. So instead of focusing on a negative conclusion, why not also have positive conclusion?

The second conclusion, did concern me just a little bit. I think you modified it a tiny bit from what was stated in the paper. State supervision of programs was not seen as an important factor in insuring that programs of the future will be quality programs. Also you recommended that NASAE address their role in program improvement and quality maintenance and determine if the quality of local programs should remain a priority of the state supervision program. I believe, that if I were a state supervisor, I would be just a little bit concerned that, from all the items on the second scale of the instrument you picked this one to draw your conclusion. Now, you did have another one you added today. Why single out this one item to address? Why not the one ranked just above it, school provided facilities for SOEP? It was ranked just above it by .01. Also, as in the first recommendation: Why not draw some conclusions for the items ranked highest on the list? Incidentally a 3.67 ranking, is not bad and you already mentioned that. Somewhere between moderately important and very important. I have a little concern about drawing that kind of conclusion related to state supervision when it was ranked fairly high.

Joe and David let me compliment you for addressing a significant issue in agricultural education. I believe you are on the right track. I really enjoyed your study and believe that it should serve to stimulate further research in this important area.

SUMMARY, REMARKS AND CHALLENGES

Dr. J. Robert Warmbrod
The Ohio State University

Dr. John A Rolloff
University of Arkansas

Keynoter's Summary

Dr. J. Robert Warmbrod
The Ohio State University

First of all, I want to again express appreciation for being invited to participate in this conference for several reasons. One is that by asking me to make a presentation you forced me to do some thinking and to put some of my thoughts into some kind of order. I think that is always good. Every once in a while one has to stop and reflect on what one really feels and what one really thinks about research. Thank you, John, for giving me the kick that at allowed me to do that. The second thing is that I appreciate the opportunity to come back to my roots. As you know I grew up in the south, in Tennessee, I assume you still consider that part of the south. I grew up in a county that bordered northern Alabama, and attempted to seceed from the union. In fact, the result of the war between the States was the way the Warmbrods got to Tennessee. My ancestors were from Ohio, strangly enough and they fought with the Union army down through that part of the state. They said, "Hey, this would be a nice place for us, we'll come back and go into farming," which they did in 1875. So it's good to get reacquainted with some of you and to get acquainted with other persons here.

John asked that I make a few comments by way of observation. I will put these in the context of what I said the other night. You are having your 35th conference, so there are some people here that are younger than this conference. There are some of us here that are older than the conference. We have just had our 40th research conference in the central region. What this tells me is that both of our regions have been interested in, and doing something about research in agricultural education for a long time. We have not just started in our research endeavours. My guess is that the nature of the conferences we are holding today are not much different than what they were in the past.

We have been emphasizing some things that are a direct reflection of the world in which we are living, particularly, the academic world. We are emphasizing the reporting of research. Now, I would argue that this conference, the conference we had in Chicago in February, and the national agriculture education research meeting are all evidence that we are paying more attention to methodology and the technical aspects of research than we are to the subject. There has not been a single paper presented here, where a great deal of emphasis has not been placed upon the methodology and the technical aspects of the study. There has not been a single discussant who has not commented on those aspects of the study. In fact, most of the discussion has been in that area.

That is alright, but what I would urge us, first of all as presenters and secondly as discussants, to begin to think about giving as much attention to what it is that is being researched, how important is it and what are it's implications, as we give to the methodology.

Every year after I attend the national agricultural education research meeting, and our Central Region research conference in Chicago I have in my head this question: What have we really learned from the research that has been reported? As I drive back to Columbus from Chicago, about the time we get to Indianapolis I have forgotten all about that. I have never carried through with a detailed analysis of the papers that have been presented -- to look at the papers solely for the new knowledge that has been disseminated at the meeting. What do I know today about agricultural education that I did not know two days ago.

I would urge that we build into our procedure, some way of detailing the research paper's pertinence to our profession. I think it is very crucial that we begin to pay more attention to what it is we are researching. Most of our research deals with what many people would describe as institutional research, (e.g. How well are we doing? And its amazing, that usually we determine that we are doing quite well.) I don't think we are doing that well. In some way we must begin to identify where we are limiting ourselves.

If I were to suggest how we might improve our conferences, I would offer two specific suggestions. I am not just talking about your conference, I am talking about our regional conference, and about the national agricultural education research conference. Number one, we would applaud a presenter who would decide that he or she would spend more time talking about findings and implications, than he or she spends talking about methodology. The methodology is there. One ought to simply say, "I did it right. If you don't believe me, ask me questions after awhile and I'll demonstrate that to you. But here is what I found and here is why it's important."

Another presenter I would like for us to applaud is the presenter who will make a presentation and not use numbers. They would instead have to communicate to us, maybe via a chart or two, but not numbers, the implications and importance of the study. I don't want to see a list of 17 things with the mean grade. Can we begin to communicate in terms which avoid overburdening ourselves with numbers? If we can, it would be another innovation. I do not know who, in this group, has got the guts to do that. But I can look out amongst you and I see some likely candidates.

Another suggestion is that, we might want to consider asking someone to be a different kind of a reviewer for <u>all</u> of the papers, or maybe this needs to be a team of two or

three people. However, these reviewers would be on the program right now and they would be saying from what has been reported, here is the new knowledge that has been generated as a result of this research. Secondly, here is what that new knowldege means to us. Moreover, here is where we go beyond the knowledge, here is where we get creative and here is where we get judgemental.

I thought it was interesting, as others did, that Joe Kotrlik's paper generated more discussion than any other paper here. I think that is a good sign. When we talk about the future, don't ask for a majority vote. Find out who the people are whose judgement you trust, and ask them. And say, don't be afraid to make me mad. It seems to me that if we're going to move beyond just simply saying: Here's what we're doing, here's how well we're doing it, we've got to say: Here is what we have learned and here is what we need. Somebody must stick their neck out. My experience in our profession is that; when you stick your neck out, there will be somebody there who will let you know about it -- raising enough questions to make sure you are not getting too far out.

Basically the bottom line, that all of us need to be concerned about in our research conferences and in our research, would be; while upholding the soundness of the methodology (how we went about it) and the technical aspects of research. Let's put more attention on the question: Are we really looking at the things that are going to or can make a difference?

Again I applaud and commend you for this conference. I am glad to see that we in the North Central conference are doing exactly the kinds of things you are. We used to have a summer research conference. We have now combined it with our general conference so that they are back to back. The results were that we doubled the attendence at our research conference. I look forward to participating as a member of the National Academy Committee in your general conference. It is nice to be with you. Thank you very much.

John A. Rolloff

University of Arkansas, Fayetteville

Conference Chairman

Thank you very much, Bob. We value your perceptions and therefore, we particularly appreciate your summation of our conference and your resulting challenges.

The remark category is somewhat superfluous, I guess, a miscellaneous section to be certain. However, it is always difficult when it is time to conclude a meaningful experience. I am reminded of one of my favorite philosophers, by the name of Goethe, who said: little words are like nuts and that of all the little words, the little word must, is of all the nuts the most difficult one to crack. "Must", having to end our conference seems to be equally difficult. It has, however, another connotation in that good research is also a "must" because it forms a common denominator. If we are to have excellence in agricultural education we must have excellence in research. It forms our base -- a common denominator.

I know that I can not speak for all of Arkansas, but only for the University of Arkansas, Fayetteville, that if we can break out of our long dormancy, others can also do it. We are presently defining and designing a research program we hope will bear fruit as excellence. We feel that the development of a sound data base through research is essential for excellence. If properly done, we believe our resulting decisions can contribute significantly to our profession, agriculture and our nation.

We have endeavoured to provide you with a rewarding conference, one which will enhance our southern region general conference "The Changing Nature of Southern Vocational Agriculture".

MINUTES OF BUSINESS MEETING
March 24, 1986

Southern Region Research Conference
in Agricultural Education

Presiding, John A. Rolloff
Acting Secretary, Max McGhee

The thirty-fifth annual business meeting was called to order by John Rolloff, who asked for corrections or additions to the minutes of the 1985 business meeting as distributed by John Crunkilton. There being no corrections or additions to the minutes they were approved as distributed.

Unfinished business was the announcement and presentation of a plaque for the outstanding research paper presented at this year's conference. The winning paper was entitled, Image of Agricultural Education Teacher Training Programs in Colleges of Education and Agriculture at Three Major Universities. The paper's authors will each receive a certificate. They are:

John R. Crunkilton, Virginia Polytechnic Institute and State University.
Larry E. Miller, The Ohio State University
Jasper S. Lee, Mississippi State University

New business constituted the election of a conference secretary to fill the slate of elected officers for the 1987 Research Conference in Agricultural Education. The new officers are:

President:	Martin McMillion, Virginia
Vice President:	Larry Arrington, Florida
Secretary:	Walter Taylor, Mississippi

Martin McMillion, Conference President, announced that the 1987 conference will be held in Williamsburg, Virginia, March 21-23 at the Fort McGruder Inn.

The meeting was adjourned.

Respectfully submitted,

Max McGhee
Acting Secretary

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